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The International Drawing Exhibition.

WHEN primitive man scratched upon a piece of bone his rude representations of the animals he knew, his art training was at the same stage as that of the elementary schoolchild of to-day at the age of six or thereabouts; that is to say, it was non-existent; it was upon his own inner-consciousness that he had to rely, without any extraneous aid, in his efforts to imitate nature. But we must bear in mind that in his case, unlike that of the elementary schoolchild, there was no outside influence to compel him to draw; so that it is improbable that he would have attempted the task unless he had felt a very strong impulse to express himself by such means. The artist who has in after years made a name for himself has usually shown this primitive man's art instinct in very early life; has attempted, for instance, to draw a horse even before he or she was quite certain of the number of legs pertaining to that useful quadruped, whose portrait we have seen, limned by an artist who had not yet completed his first lustre, erect on six supports, drawn after the fashion of a railway viaduct. Such an instinct was manifested by Benjamin West, born in the Pennsylvania of the XVIIIth century, where, as Allan Cunningham tersely puts it, "there were neither professors, paintings, nor prints"; from the day when he first showed his natural proclivities down to the occasion when the Quakers in solemn conclave assembled, the gift of speech descending on one John Williamson, he delivered himself as follows: "To John West and Sarah Pearson a man child hath been born, on whom God hath conferred some remarkable gifts of mind; and you have all heard that, by something amounting to inspiration, the youth has been induced to study the art of painting. It is true that our tenets refuse to own the utility of that art to man, but it seemeth to me that we have considered the matter too nicely. God has bestowed on this youth a genius for art—shall we question His wisdom?" Nowadays we may be allowed to think that the fruits of his maturer years did not realise the promise of his early days, yet if ever there was a case of a born artist, West's was one. This instinct cannot be taught; by patience a child may be taught to draw with tolerable correctness; the impelling desire to give form and colour to its ideas comes only by nature. And yet drawing can and should be taught in the same way as grammar, not with the idea that artists can be turned out to order, any more than great writers, but with the object of training hand and eye, as nothing else can, to appreciate the outward form of things, and so, by adding a fresh means of expression, to stimulate the powers of the imagination.

We have been led into these remarks by the exhibition of the International Drawing Congress which is now being held at South Kensington. A point that is most forcibly driven home is the great advance which has been made within the last twenty years in the methods of elementary art instruction which now obtain throughout Europe. Indeed, it is only comparatively recently that drawing has been systematically taught at all, so unimportant a branch of education has it been thought in the past. In this connexion we question whether our great public schools are as alive to its importance as are those in charge of the education of the children of the poorer classes. In the former the old "drawing master" system has not completely disappeared; the absurd and useless drawing from copies and models, without end or aim, than which nothing more likely to kill any natural aptitude the child may possess can be imagined. Contrast with this the system pursued in the London County Council schools. As much work as possible is done from nature and from real objects, both directly and from memory; in fact, the drawing lesson is made as interesting and stimulating as possible, and pursued as a vital portion of the child's education. Where special ability is shown, special attention is given; scholarships are awarded to clever pupils from elementary schools to enable them to proceed free of charge to any of the great art or technical schools.

The specimens of work shown by the Kingsland Secondary School are exceedingly interesting. A series of illustrations to "The Fairies," the work of a child of twelve, is especially noticeable. The drawing and colouring are weak, as one might expect, yet through this show qualities of imagination which will be worth cultivation. There is considerable truth both of colour and form, though rather conventionally expressed, in the drawing of cliff and sea. The cliffs, of course, are white chalk, the only kind of cliff the southern child knows. The colour of the sea has been quite excellently caught. Illustrations to the "Midsummer Night's Dream," by a girl of sixteen, are very creditable to the system of teaching pursued. Curiously enough, even at this late date, there is a distinct trace of the not altogether beneficial influence of Kenny Meadows in them.

At Leicester, in the kindergarten and infant schools, about half the school hours are devoted to drawing, painting, modelling, and paper cutting, which are considered as among the most valuable educational factors in the child's earlier years. The variety of materials and instruments used give a sense-training which forms a sound foundation for the

future acquirement of more specialised knowledge. From Standards I. to VII. an average of three hours per week are given to the teaching of drawing. Flowers, leaves, and other natural objects form the models which are drawn from, as well as buildings, tools, and the like, invaluable for drilling the powers of observation, inasmuch as mistakes made can be more adequately corrected by the teacher than in drawing from natural forms. On leaving, for those who wish to specialise in any branch of the arts or crafts, there are the evening continuation schools, from which scholarships are obtainable to the municipal school of art.

Some of the drawings by children in the infants' classes are quite remarkable, noticeably the illustrations to "The Story of the Ugly Duckling." In the higher standards excellent training is afforded by the drawing from measurement of common objects, in plan and elevation, as a door, a clock, or a blackboard, and some good examples of such drawings are shown. The faculty of order and design is encouraged and developed by the writing of simple inscriptions for Christmas cards, calendars, etc., carefully and methodically spaced out.

Among the United States exhibits are some excellent life-studies done by children of the age of thirteen in the Chicago public schools.

Typical of Holland are the exhibits from the Nunspeet School, whose methods are set forth in a somewhat quaintly-worded announcement. "Since 1905," runs the notice, "we were copying from the flat and from cards. The last three years we are trying new paths. In St. I. we try to stimulate the children's spontaneous drawing." Certainly the "children's spontaneous drawing" is very creditable.

In the German section is some most excellent work from the elementary school at Munich. To judge from the examples shown among the exhibits from the German schools the system of teaching is very efficient. The Austrian and Hungarian sections contain much good work. In the latter should be noticed the very carefully made models for object drawing. From Denmark come some very good specimens of class-work done by pupils of between thirteen and fourteen years of age. To judge from the home work done by the same children, we should imagine the former have been touched up a little by the teachers.

We have treated mainly of the children's work, as it is very rarely that such a large selection representative of so many countries can be seen together at one time. Of the work of the maturer students there is a very wide and interesting collection. In the British section a prominent part is taken by the London County Council art and crafts schools, and the Birmingham and Bradford schools of art. From Birmingham is a fine box of hammered brass done by the members of a class. The lid is divided into sixteen compartments, in each of which is the representation of a bird or a beast, according to the individual taste of the different members of the class employed on its design and construction. From the same school comes also an admirable piece of wood-carving by Bryce M. Murdock, which was judged worthy of a bronze medal in the National Competition. France is worthily represented by a collection of prize pictures by students of the Ecole des Beaux-Arts. "Le Bain des Nymphes," by M. Plauzeau, is a noticeable composition. The active motion of the figures is very cleverly rendered. Very fine work is shown by art students in the United States, forming one of the most complete exhibits in the exhibition.

Seldom has so large an assemblage of the world's art work been brought together before in one place as during the present month at South Kensington; we would advise all interested in the co-ordination and systematising of art-teaching to go there and see for themselves what other countries are doing towards that end.

DRAINS AND SEWERS.

A DECISION of the House of Lords on the vexed question of what constitutes a "drain" must be regarded with considerable interest, and we purpose therefore to consider the judgment recently delivered in that House in the case of Wood Green Urban District Council *v.* Joseph, noted in the Court of Appeal in the *Builder*, February 9, 1907. The facts of the case were shortly that a row of sixteen houses, six of which belonged to the defendant, the respondent in this appeal, were drained into a conduit which ran parallel to the houses and behind them into a sewer which was laid in a road which passed the end of this conduit at right angles to it. This conduit was laid on private ground, but when and by whom it was constructed was not proved in the case. The houses were connected with this conduit by short lengths of pipe which took the drainage of the houses in pairs, and for the purposes of this case it was admitted that these short pipes were "sewers," since the ownership of the houses connected in pairs was the same. The conduit required alteration and repair, and the appellant Council, having served notices on the owners who made default in carrying out the work, executed the work, and this action was brought against the defendant to recover his share of the apportioned expenses. Sect. 4 of the Public Health Act, 1875, defines "drain" as "any drain of and used for the drainage of one building only or premises within the same curtilage and made merely for the purpose of communicating therefrom with a cesspool or other like receptacle for drainage or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed." "Sewer" includes sewers and drains of every description, except drains to which the word "drain" interpreted as aforesaid applies. These definitions were amplified by sect. 19 of the Public Health Amendment Act, 1890, as follows:—"When two or more houses belonging to different owners are connected with a public sewer by a single private drain" . . . then the provisions contained in sect. 41 of the Public Health Act as to nuisances from drains can be put in force as against these owners.

The course of the litigation appears to have been as follows: The justices decided (1) that under sect. 41 of the Act of 1875 the written information must be made by some person other than the surveyor or inspector of nuisances. The Divisional Court reversed this finding, and on the further appeals this point dropped out of the case; (2) that under sect. 19 of the Act of 1890 the houses were not connected with the sewer by a single private drain, since the short lengths of "sewers" were interposed between the houses and the private drain. The Divisional Court appears to have held that this was not a single private drain, because under sect. 4 of the Act of 1875 it received the drainage of more than one building only and that the fact that other houses than the six houses in question were also drained into it by pipes which were sewers did not convert it into a single private drain under sect. 19 of the Act of 1890. In the Court of Appeal the case was decided on the single point that the houses were not "connected with a sewer by a single private drain" because of the interposition of the short "sewers." The House of Lords have dissented from this finding of the Court of Appeal, holding that these houses were connected with the sewer in question just as much as if each house had been joined up by a separate pipe to the conduit, but the House also held that the conduit was not a single private drain within the meaning of sect. 19 of the Act of 1890 because it was not a drain which sects. 23 and 25 of the Act of 1875 require an owner to provide, or one within the purview of sect. 41. The case is at present shortly reported, and when the judgments are set out at length more assistance may be derived from them. The most noticeable feature of the judgment now reported is that portion of it which contains a review of the provisions of the Public Health Act, 1875, and which shows that sects. 13 to 41 contain a perfectly intelligible and practical code providing for the public and private liabilities in connexion with the drainage of private houses into sewers and that what causes the many absurdities and anachronisms is the definition of the words "drain" and "sewer" in sect. 4.

When the long-called-for legislation comes at last to be granted dealing with this subject it may be found that an alteration of these definitions in the Public Health Acts and the Metropolis Management Acts is all that is required for a far more practical result to be attained than by the fanciful Bills which have been drafted by the local authorities. Lord Atkinson's judgment brings out this point very clearly.

THE INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.—It is intended to hold an International Roads Congress in Paris on October 11 next and following days. The Council of the Association have appointed the following members as delegates to the above Congress:—Mr. E. P. Hooley, President, County Surveyor, Nottinghamshire; Mr. J. A. Brodie, City Engineer, Liverpool; Mr. T. W. A. Hayward, Borough Surveyor, Battersea; Mr. W. F. Loveday, Borough Surveyor, Stoke Newington; Mr. H. E. Stilgoe, City Engineer, Birmingham; Mr. W. J. Taylor, County Surveyor, Hampshire; Mr. R. J. Thomas, Esq., County Surveyor, Bucks; Mr. H. T. Wakelam, County Surveyor, Middlesex; Mr. C. F. Wike, City Surveyor, Sheffield; with Mr. Thomas Cole as Secretary.

NOTES.

The International Art Congress.

LORD CARLISLE merits the thanks of all who are interested in art in this kingdom for the plain-spoken language which he, as President of the Art Congress, used in regard to the official neglect of art and of art-teaching in this country. Referring to the discreditable fact that the Government has entirely ignored the Art-Congress, which is concerned mainly with methods of art-teaching that should affect the whole of our schools and Universities, he characterised this neglect as due not to intentional discourtesy but to "extreme stupidity"; and the expression is not a whit too strong. The utter indifference to art on the part of the House of Commons, considered *en masse*, and their faculty, when they do propose anything, of doing or wanting to do exactly the wrong thing, is quite phenomenal; and it is no wonder that the President inquired "whether any of the foreign visitors could explain how it was that their Ministers and members of municipalities were as well educated as their pupils." It is to be hoped that these plain remarks from the President of the Congress may not be entirely without their effect, by at least suggesting to members of the Government that some discredit attaches to them for their absolute and obsolete indifference to the encouragement and support of art in this country. Another point in the first day's discussion which we would like to emphasise is Professor Pite's protest in favour of combining the study of the history of a people with the study of its architectural monuments. As he truly says, it is astonishing that students of Greek literature and Greek thought should not be definitely trained in the knowledge of Greek architecture. He who knows only the literary expression of ancient Greece, great as that is, knows but one half of the achievement of "the supreme Caucasian mind."

Victoria Station.

THE final completion of the Brighton Railway terminus marked the first stage of the long-needed reforms of Victoria Station. The second series of improvements is represented by the important works of the South-Eastern and Chatham Railway. These include the construction of a new roof over the platforms, and the substitution of permanent buildings for the miserable timber sheds and insignificant brick structures formerly disfiguring one of the finest sites in the metropolis. Part of the area now covered by the new station buildings was formerly a canal basin, and to insure sound foundations a slab of concrete some 200 ft. long by 65 ft. wide has been formed on the made ground. This slab is described as being of reinforced concrete, but in view of the fact that the thickness is 6 ft. it scarcely justifies the designation, although no doubt some reinforcement has been applied for additional security against tension. Next to the building fronting the station yard and Wilton-road the new roofing over the platforms is the most noteworthy feature of the improvement scheme. It embodies the ridge and furrow system applied so successfully by Mr. Tempest at Charing Cross, and, incidentally, has had the effect of providing an unimpeded circulation area for passengers by permitting the removal of columns required as intermediate supports for the former roof.

The Town Planning Bill.

MR. RAYMOND UNWIN makes a very good suggestion in the *Times* of Monday, in regard to the practical working of the Town Planning Bill. He recommends that before permission is given to prepare a scheme or plan, the central authority should be in a position to require that a town should have all the necessary information prepared and ready; and that to this end a public local inquiry should be held, as a preliminary to the drawing up of a scheme for the planning of a town improvement. As to the line which such an inquiry should take, he suggests a collection of old maps to show the past lines of the town's development, as well as ordnance survey maps coloured to represent the present condition of the town in regard to such points as the position of parks and other public spaces; vacant spaces available for extension; public buildings within the area to be dealt with; lines of main drainage and water supply; position of trees or other objects of natural beauty; and contour maps showing the levels of the whole of the ground. The latter would be most important in regard to determining the best line for new roads. We are pleased to note in Mr. Unwin's letter the statement that the Sociological Society are supporting the suggestions made by Professor Geddes for the amendment of the Bill now before Parliament. The whole subject is new in this country, and it is very desirable that it should be dealt with in the most judicious manner possible. The whole letter is a very sensible and useful one, and deserves serious attention.

Timber Supplies.

ONE more hint concerning the necessity of grappling with the question of afforestation at home is furnished by some remarks in the report of the New South Wales Public Works Ministry. It is stated that the number of complaints received from contractors as to the difficulties and delays experienced in obtaining timber up to the standard and dimensions required for public works contracts, particularly iron bark and timber more than 40 ft. long, strongly suggests the approaching exhaustion of the more readily accessible timbers of the better class. No doubt ample supplies remain in the State to satisfy all requirements for many years to come, but, as the Secretary of State points out, it is rapidly becoming more difficult of access and therefore more costly. So far nothing has been done towards replenishing the enormous drain caused by the demand for railway sleepers, bridge, wharf, and building timbers, and great though the resources of the country may be, the absolute necessity for a systematic and practical application of forestry has become perfectly evident. It is very ominous to find the responsible ministers of a timber-growing country like New South Wales in the position of being compelled to husband their resources.

Kingston Bridge, Surrey.

AT the meeting on July 28 of the Surrey County Council it was announced that the Highways and Bridges Committee have resolved to seek for statutory powers to expend about 60,000*l.* upon a reconstruction of the bridge, in view of its unsuitability for the tramway traffic which was opened about two years ago. As we pointed out at the time the bridge, which is 382 ft. long between the extremes of its abutments, and 25 ft. wide between the balustrades, is too narrow for the uses to which it has lately been subjected. In our number of January 7, 1905, we published a two-page illustration, after a drawing by Mr. W. Monk, of the bridge which now forms one of the chief adornments of the lower Thames. It is a typical example of the old masonry bridges, erected in the XVIIIth-XIXth centuries, of which the simple but dignified character contributes so greatly to the beauties of the river scenery. Whilst it could be widened, under the hands of a competent architect, so as to present its original exterior design, there is considerable apprehension that in the new structure the particular architectural features we speak of will not reappear. The bridge was built in 1825–8, after designs by Edward Lapidge, County Surveyor, who had modified his first plans and specifications to bring the cost within the 40,000*l.* limit imposed by the Act (6 Geo. IV., c. 125) in that behalf. About that sum was expended upon the entire works, with the approaches; the bridge itself cost 26,800*l.* It was constructed mainly of brick, with ashlar of Portland stone, and has five elliptical arches; the middle arch has a 60-ft. span with a versed sine of 19 ft.; the two arches on either side have spans of 56 ft. and 52 ft., and rise 18 ft. 3 in. and 16 ft. 6 in. respectively. The lowest summer-level of the stream falls to about 6 ft. below the springing line of the arches; there are two brick arches, beyond the abutments, for floods. The ratio of the piers to the spans of the arches is about 1 to 6; either incline has a gradient rate of 1 in 40. A cornice and balustrade with the squared refuge-places projecting above the piers, and the low rounded towers or bastions of the abutments, give bold relief to the general elevation. The former wooden bridge, which stood 200 ft. distant down stream, is cited as needing repair in a close Roll of 7th Henry III. (1223), and, London Bridge excepted, was the most ancient of those that crossed the Thames.

Fire Protection Devices.

A PAPER read by Mr. Gorham Dana to the Boston Society of Arts deals in a comprehensive manner with recent developments in fire-protection devices. The subject is of special importance in the United States where fire losses represent a total of something like 36,000,000*l.* every year. Automatic sprinklers in various forms are described and illustrated, together with dry valves, for use in buildings where water might freeze in the pipes during cold weather; alarm valves, for the prevention of water damage after the extinction of fire by

automatic water sprinklers; and various methods of water supply to the sprinkler installation. To illustrate the value of automatic sprinklers, we may mention that according to statistics furnished by the National Fire Protection Association relative to 5,000 fires in buildings so protected, 93 per cent. of the outbreaks were extinguished or properly held in check by the sprinklers. Other devices considered are alarm appliances, fire-doors, and shutters, wired glazing, and external sprinklers to form a water curtain on the exterior of a building. Practically all the apparatus described is now obtainable in Great Britain, and is being employed in some of our factories and modern buildings. But here, as in America, people generally seem to think that a vague trust in Providence is more economical than the adoption of safety devices.

Dust and Disease.

THIS was the text for a lecture delivered by Dr. E. Owen at the British Medical Association meeting for the benefit of people in Sheffield. Since the introduction of steam power to replace the water-wheels by which grinding apparatus was once operated in sheds on the banks of the river, Sheffield workshops have become places for the generation of metallic dust on an extensive scale. Grinding wheels are no longer moistened, and thousands of persons breathe an atmosphere permeated by floating particles, which is responsible for the lung disease attacking workers in the city of steel. The remedy is to be found in adequate ventilation and the re-introduction of "wet" grinding. We hope with Dr. Owen that dry grinding will soon become a thing of the past in Sheffield, but would go a step farther in hoping that all industrial firms conducting operations by which dust is formed will consider it their duty to deal suitably with fine particles of metal, stone, timber, and other substances. In these days of fans there is no excuse for compelling workpeople to inhale dust, and having once provided for carrying this away from the interior of manufacturing premises, it would be quite easy to intercept it in suitable chambers connected with exhaust ducts, and so avoid the distribution of finely-divided matter into the air breathed by the surrounding population. The question of trade dust is not one for engineers alone, and requires attention by many of our readers who are engaged in stone dressing and timber working industries.

Private Monuments and the State in Italy.

A FEW months ago the Italian daily papers published the case of a house-owner in Verona who removed from his house an old and beautiful balcony, which, however, he was compelled by the authorities to replace. As the case deserves attention from the point of view of the preservation of monuments the following details may not come amiss. The house stands in the Via del Seminario, Verona, and the balcony, which has artistic as well as archæological value, is in full view of the public. The owner wished to sell it, but was warned by the Government authorities not to touch it without the necessary permission. In spite of this the owner took the balcony down and lodged it under cover. Now the statute of June 12, 1902, for the preservation of works of art in Italy, contains the following clauses:—

"No. 5. The owner of a monument or object of art . . . is compelled to give notice of any change he proposes to effect thereon. No. 10. No works may be undertaken with regard to monuments, etc., of artistic or archæological value without the permission of the Minister for Education. This permission is also necessary for monuments in private hands when the proposed works would affect those parts exposed to public view. No. 11. Remains of monuments on private property may not be altered or removed unless Government experts advise they are not worth preserving. No. 26. The infringement of Clause 5 is punishable by a fine of 500-10,000 lire. No. 29. The contravention of Clauses 10 and 11 is similarly punishable. If the damage done be entirely or in part irremediable the guilty party to pay a fine equal in amount to the value of the damaged monument."

Hence the owner of the house was arraigned before the Tribunal of Verona on November 13, 1906, and condemned to pay a fine of 500 lire and to replace the balcony. The defendant took exception to the latter part of the sentence, which is not expressed in words in the statute, but which the Court held to be a logical deduction. He appealed to the Court of Cassation, which, however, confirmed the sentence.

THE WASTING OF IRON.—VI.

By THOMAS HOLGATE, M.INST.C.E., F.C.S.

EFFECT OF THE SURFACE OF THE METAL, AND ITS OCCLUDED GASES.

IT is important to notice that the surface of iron varies according to the treatment received in manufacture, and that it may occlude gases which affect the chemical, physical, and electrical behaviour. In 1900 E. Heyn showed that when cast-iron is heated at 730° to 1,000° C., in contact with hydrogen, and then chilled, it becomes more brittle than when similarly treated in air and chilled. If, however, the metal is allowed to cool slowly in hydrogen, it remains tough, and at temperatures below 730° its properties are not affected by hydrogen. In one experiment at 820°, hydrogen equal to 0·00019 per cent. of the weight of the iron was liberated. In the case of iron containing very little carbon the brittleness is partly removed by heating in boiling water, or even by long exposure to the air at the ordinary temperature, and is completely destroyed by heating at 200°-250°. Iron containing more carbon retains its properties much more obstinately. The hydrogen penetrates below the surface, but the density is not sensibly affected thereby. Bertram Blount (1906) stated the hardness of electro-deposited iron to be due to the presence of hydrogen which is co-deposited with the metal and influences its condition much as does a small percentage of carbon. The quantity of hydrogen present in electro-deposited iron may be considerable, *e.g.*, 240 times the volume of the metal or 0·27 per cent. by weight. By heating the metal to redness the hydrogen is driven off and the characteristic hardness of electro-deposited iron disappears.

O. Boudouard (Compt. rend. 1907) has shown that on heating iron in a vacuum carbon dioxide, hydrogen, carbon monoxide, and nitrogen were disengaged from wire 0·5m.m. diameter, 0·0957 per cent.; wire 2m.m. diameter, 0·1029 per cent.; sheet 1 m.m. thick, 0·099 per cent., and filings, 0·2207 per cent.

G. Belloc found the same gases as Boudouard, and that as the temperature is raised the first constituent to appear is carbon dioxide, disappearing at about 550° C. Nitrogen then appears above 400° C., hydrogen and carbon monoxide are given off in proportions, subject to sudden alteration with the temperature.

T. W. Richards and G. E. Behr (1907) found that the potential of pure spongy iron is considerably affected by exposure of the metal to air, probably owing to the formation of a very thin film of oxide, or to occluded oxygen. On immersing such iron in ferrous sulphate, a low value is at first obtained for the potential, but this gradually rises, and a constant value is reached. On subjecting such iron to very great pressure, the metal is welded to hard plates with bright surface, but the compact metal has the same potential as before. Spongy iron obtained by reduction at low temperatures has a potential of 0·17-0·18 volt, at least 0·02 volt higher than compact iron obtained by fusion. The difference is probably connected with the size of the iron particles.

The potential of pure iron is not appreciably affected by sudden cooling from a high temperature. Finely-divided iron obtained by reduction at low temperature is capable of taking up hydrogen without the potential of the metal being notably affected. If the metal becomes completely surrounded by hydrogen its potential is diminished. In these cases the occluded hydrogen appears to be simply absorbed in the molecular condition. Pure iron when quenched in water, whether in an atmosphere of hydrogen or of nitrogen, takes up hydrogen in an active form, which increases the potential of the metal by 0·15 volt. This hydrogen is rapidly evolved in ferrous sulphate solution, but only slowly in water or potassium sulphate solution, the potential falling to the normal value. Iron is capable also of taking up a small quantity of hydrogen in this active form when heated to a high temperature, 575° C., in hydrogen gas. Messrs. Richards and Behr hold the opinion that hydrogen in the active condition must be regarded as in the atomic condition, although not ionised. The active hydrogen occluded by iron in this way seems to be of the same nature as that taken up by iron in presence of nascent hydrogen, originating either from chemical or electrolytic processes.

Akin to these researches are those of G. T. Beilby, F.R.S. (1902-4), in which he shows that the mechanical, physical, and electrical properties of a metal are affected by its being in the hard or soft phase. Chas. E. Fawsitt, D.Sc. (1906-7), found that there is in general a difference of potential between different varieties of the same metal, and when placed in a solution of one of its salts the amorphous phase is in general negative to the crystalline phase. The electrolytic solution pressure is affected by the surface condition of the metal. Rods of iron were examined by measuring the differences of potential between these and 0·5 molar ferrous sulphate, the rods being rotated at six revolutions per second. With a series of steels containing different amounts of carbon, the potential difference was practically constant and equal to that of ferrite. A roughening by etching or blasting produces an increase of the solution pressure, due to the greater surface of contact of the metal with the solution.

C. F. Burgess and S. G. Engle (1907) find that in normal solutions of hydrochloric or sulphuric acid the rates of dissolution of electrolytic iron, tempered steel, ordinary cast-iron, and soft sheet-iron, are approximately in the ratio 40, 10, 7, and 1, but that a preliminary heating of the electrolytic iron to 1,000° C., followed by slow cooling, reduced it to the same rate as the soft iron. Traces of arsenic in the iron greatly increase the resistance to the action of acids.

A. Schleicher and G. Schultz (Stahl und Eisen, 1908), of Munich, have made experiments in measuring the voltage obtained by immersing clean and rusty plates of wrought-iron and cast-iron in water, and connecting them electrically. If the E.M.F. is zero, or remains constant, both the plates used are affected in the same way, *i.e.*, are oxidised to the same extent. If the E.M.F. changes, one plate is acted on more strongly than the other. The largest E.M.F. obtained

between two wrought-iron plates was 0·36 volt, the current produced being about 0·00018 ampere. When plates of carbon and bright iron were coupled the carbon became the anode, the potential set in rather high, and rose on open circuit continuously in twenty-four hours to 0·77 volt; in five hours more the galvanometer had receded to zero, and the water had become very turbid. Plates of wrought-iron or of cast-iron rusted more when alone than when coupled with carbon plates; the latter showing the smaller potential differences. On connecting a rusty wrought-iron plate with a clean one, it was found that the latter acted as cathode, iron being dissolved, and the voltage falling rapidly. In a pair of clean wrought-iron and cast-iron plates, the latter formed the cathode; the E.M.F. at first obtained fell to nearly zero, rose again after a time, and finally remained constant, both plates becoming oxidised. Both cast-iron and wrought-iron planings rusted more rapidly in water containing both carbon dioxide and air, than in water containing only carbon dioxide. In the last-named liquid cast-iron shavings or grains were always more rapidly dissolved than wrought-iron in the same state of aggregation.

Otto Faust (1907) shows that an electrolytic deposit of spongy iron containing a considerable quantity of occluded hydrogen gives an E.M.F. of 0·39 volt; when the occluded hydrogen has escaped, which it does in bubbles, the E.M.F. rises to 0·44 volt.

(To be continued.)

THE ROYAL ARCHÆOLOGICAL INSTITUTE AT DURHAM:

ANNUAL CONGRESS.

FOR the first time in the history of the Royal Archæological Institute its annual meeting has been held at Durham. The difficulty hitherto has been to obtain in that city sufficient lodging accommodation for the large numbers now yearly attending the meetings; but this time, through the kindness of the University authorities, ample room was found in the Castle and at Bishop Hatfield's Hall.

In selecting Durham as this year's centre, it was hoped by the Council that that *doyen* of British archæologists, Canon Greenwell, would have accepted the office of President: but this, on account of his advanced age, he felt unable to do, and Lord Barnard kindly consented to serve instead.

The meeting opened on Tuesday, July 21, in the Town Hall, where the Mayor of Durham, Alderman Brownlees, who was accompanied by the Mayoress, formally welcomed the Institute to Durham. In the unavoidable absence of Lord Barnard through indisposition, the President of the Institute, Sir Henry Howorth, gave an address on some points connected with the archæology of the county of Durham, especially as to its lack of prehistoric remains and of relics of the Stone Age and the Bronze Age.

Through the kindness of the City Guilds, a fine series of punch-bowls, tankards, and drinking-cups, and other articles of silver plate were displayed in the hall.

Durham Cathedral.

A move was next made to the cathedral church, where Mr. John Bilson described the earlier architectural history of the building with special reference to its plan and setting-out, and the early dates of its vaulting. The following is the substance of Mr. Bilson's remarks:—

What is known from documentary sources of the history of the building is derived chiefly from Symeon, whose history ends in 1096, and from his continuator, who finishes in 1144. The material passages may be summarised thus. Bishop William of Saint-Calais took down the "white church" of Aldhun, and in the following year began to build a nobler and larger church. The foundation-stones were laid on August 11, 1093. There is no record of the progress of the work when Bishop William died in 1096, but it is noted that the Bishop had undertaken the erection of the church, while the monks went on with the monastic buildings, and that, when the Bishop's death put an end to this agreement, the monks devoted themselves to the works of the church. When Ralph Flambard became Bishop in 1099, the works had advanced as far as the nave, which, of course, does not imply that all the eastern parts were then finished. In 1104 the body of St. Cuthbert was translated to the shrine at the east end, which clearly marks the completion of the choir. Flambard proceeded with the work "modo intentius, modo remissius." When Flambard died in 1128, he had carried up the nave as far as the vault ("usque testudinem"). In the interval between Flambard's death and the accession of Bishop Geoffrey Rufus in 1133, the monks finished the nave ("navis . . . peracta est"). Such is the evidence of the contemporary historians. It remains to fill in the rest of the story from the structure itself. To begin with the plan. The longitudinal and transverse axes are perfectly true and square, without any of those "refinements" which it has been left for modern writers to discover. The plan of the eastern termination shows three parallel apses—a great apse to the choir, and smaller apses at the ends of the aisles, finished square externally. The beginning of this plan, so far as the Norman school is concerned, is to be found in the abbey church of Bernay, founded in the first quarter of the XIth century. It was the original plan of Jumièges, begun in 1040, and probably that of Saint-Étienne, Caen, and it still survives at Montivilliers, Cerisy-la-Forêt, Lessay, Saint-Georges-de-Boscherville, and Saint-Gabriel. In England it was probably followed at Lanfranc's Canterbury, at Lincoln, and at Ely, and it is known to have been the plan of St. Albans, Peterborough, and Selby. All the examples in Normandy have choirs of two bays in length, except Montivilliers, which has three bays. At St. Albans, Durham, and Peterborough the choir is expanded to four bays in length. Durham has eastern aisles to each arm of the transept, instead of apsidal chapels, and three towers, a lantern-tower over the crossing, and two towers at the west end. In addition to the four bays of the choir, there was an oblong bay in front of the apse, and it is to be noted that the centre-to-centre width of the choir, repeated eastward of the four choir bays, gives the springing line of the apse. The bay design of the choir is obviously inspired from the nave of Jumièges, which was finished in 1067, and the proportions of height are much more like those of Jumièges than of Saint-Étienne, Caen, and Winchester, where the arcade and triforium stages are much more nearly equal in height. The alternate system of piers, for which a Lombard origin is usually claimed, certainly receives its logical expression in the single quadripartite vault over the double bay of the Lombard churches, which, so far as is known, is not the case in any existing Norman church of early times. The double bay at Durham forms a pronounced oblong from east to west, which is also the case at San Michele, Pavia, and Jumièges, but whereas the proportion of the clear width to the width of the double bay at Jumièges is 1 to about 1¼, at Durham it is 1 to more than 1½. Whatever may have been the first intention of the builder of the choir of Durham, it is certain that the double-bay plan does not find its logical expression in the vaults actually built, but it is equally certain that the form of the vault had been already decided when the triforium stage was reached, as is proved by the vaulting-shafts set on the recessed wall-face, and by the rudimentary flying-buttresses under the roof of the triforium. The original stone vaulting of the choir threatened ruin in the second quarter of the XIIIth century, and was replaced by the existing vaulting, which was finished *circa* 1280. The lines of the lunettes of the original vault are still to be seen on the wall of the clearstory, and the inference from the vaults of the choir aisles is that the original vault over the choir finished in 1104 was a ribbed vault of the same type as the actual vault of the north transept. The absence of the usual wall-passage is doubtless due to the desire not to weaken the wall. The vaults of the choir aisles, which may safely be said to have been built by 1096, present the earliest known example of a ribbed vault in the Anglo-Norman school. As in the earlier unribbed groined vaults, the geometrical setting-out is controlled by the semicircular transverse arch or arcade arch, and the diagonal ribs are segments of circles, struck from centres placed much below the springing-line. The vaults of the aisles of the transept and nave and the high vaults of the north and south transepts follow the same system, which is constant, both for the earliest ribbed vaults of the Anglo-Norman school, and for the sexpartite vaults of Caen and its district. The question of the date of the Durham vaults, which was first decided from the documentary evidence by Canon Greenwell in 1881, has been the subject of much controversy during the last ten years, especially in France, but the evidence is incontrovertible. The strongest opponent of the views here expressed, M. le Comte de Lasteyrie, has argued, from the fact that at their springing over the minor piers the diagonal ribs of the choir aisles mask the springing of the outer order of the arcade arch, that the existing ribbed vaults are a later reconstruction of unribbed groined vaults with ashlar springers to the groins, as at Saint-Étienne, Caen, Winchester, etc. But he has failed to notice that this bad fitting, which does not exist at the three other angles of the bay, necessarily results from the plan of the minor pier, and that, if the diagonal rib be suppressed, there is no room for the projecting springer of the groin which he supposes. The peculiar plan of the vaulting-shafts at the angle of the choir aisle and transept aisle, repeated nearly a century later at Lisieux, is an additional confirmation of the view that these vaults are original, and it cannot be reconciled with M. de Lasteyrie's theory of reconstruction, which, moreover, is emphatically contradicted by the sequence of profiles (mouldings and chevrons) in the vaults of the church, and of the chapter-house which was finished by 1140. The south transept was pushed forward, on account of its being next to the cloister, a little in advance of the north transept, and the idea of vaulting (hitherto unknown for transepts in the Norman school, though usual over choirs) was abandoned, possibly from motives of caution, possibly because of the more restricted means of the convent following the death of Bishop William. The clearstory of the south transept was then built with a continuous arcade for a wooden ceiling. In the north transept, however, the idea of vaulting was again taken up, and the existing vault was built during the first twenty years of the XIIth century on the supports and with the abutments originally designed for a vault on the east side, and on the corbels inserted in the west wall. This north transept vault is the earliest high-ribbed vault of the Norman school, and was probably closely followed by the high vaults of the eastern parts of Lessay, which, however, have a complete system of transverse ribs, while at Durham the transverse ribs are absent in the middle of the double bay in all the high vaults. The second change of plan and consequent construction of the existing vaults of the south transept closely followed those of the north transept, but the ribs, instead of being simply moulded, are decorated with zigzags. The same decoration commences in the diagonal ribs of the nave aisles vault westward of the eastern double bay. In the nave there is evidence of the same abandonment of the idea of vaulting, and of its later

resumption. The corbels and ribs below the clearstory string are let into the wall, except in the western bay and eastern side of the next bay, where the ribs were evidently built with the walls. The nave vault, built between 1128 and 1133, presents an early example of an important innovation in setting out the rib-curves. Here the semi-circular curve is employed, not for the transverse arches, as in the earlier work, but for the diagonal ribs—an advance which Viollet-le-Duc calls the only innovation of the first builders of Gothic vaults—and the transverse arches are pointed, the curves springing somewhat awkwardly from centres placed below the capitals. All the vaults have cells of rubble, plastered, whereas in the earliest ribbed vaults of the Ile-de-France, which date from about 1130 or 1135, the cells are constructed from the first in worked stones in regular courses. A decisive proof that the high vaults of the choir, north transept, and nave are original is to be found in the fact that the clearstory centres with the vault, and not with the triforium, showing conclusively that the vaults were built with the clearstories. No claim is advanced here that these Durham vaults were the first ribbed vaults ever constructed. Perhaps they were not even the first of the Anglo-Norman school; but their importance lies in the facts that their chronology is precisely fixed, that they explain the subsequent development of the sexpartite vaults of Caen and its neighbourhood, and that these vaults of the Norman and Anglo-Norman schools, with their whole structural system of abutment, triforium stories, wall-passages, and the rest, had a much more powerful influence than the works of any other school on the formation of the school of the Ile-de-France.

The history of the later work in the cathedral was also described, but it is too well known to need repetition here.

M. Eugène Lefèvre-Pontalis, the President of the *Société Française d'Archéologie*, referring to the eastern aisles of the transept, said that in some recent excavations beneath the present cathedral of Orléans he had found that the church of the beginning of the XIIth century had both eastern and western aisles to its transept, as at Saint-Remi, Reims, and at Winchester and Ely. Referring to the question of the Lombard origin of the double-bay plan, he said that M. Gsell had recently discovered an example of alternating larger and smaller pillars in an early basilica in North Africa. As to the chronology of the vaults of Durham, he entirely accepted the dates given by Canon Greenwell and Mr. Bilson, and admitted the importance of Durham in the story of the evolution which led up to the beginnings of Gothic in the Ile-de-France.

Monastic Buildings, Durham.

Mr. W. H. St. John Hope next took charge of the party for an examination of the monastic buildings. The earliest portions of these have been assigned, on somewhat uncertain evidence, to Bishop Walcher, between 1072 and 1080. But the introduction of the Benedictine monks was actually due to Bishop William in 1083, and to that date belong apparently the remains of the first dormitory subvault in the basement of the present Deanery. The frater on the south side of the cloister is recorded to have been built by the monks between 1088 and 1091, but only its vaulted cellarage now remains. Recent excavations in connexion with the site of the destroyed "laver," or conduit, opposite the frater door had disclosed the fact that the Norman lavatory had been built in the angle of a smaller cloister than the present, and Mr. Hope showed that if the square of this were set out, the site of Aldhun's "white church," supposing that followed the type of the Dover church, could be pretty closely located. Its nave would then have stood parallel and side by side with the present south aisle, and an existing difference in the levels of the plinths on the western side of the south transept occurs exactly at a point where the large corner turret would have been built up to the older church. The transepts and presbytery of Aldhun's church could easily have continued in use while the presbytery and choir and much of the transepts of the new church begun in 1093 were built up round them. The architectural remains of the Norman lavatory pointed to a continuation of the first cloister until its enlargement by Bishop Pudsey. Mr. Hope dealt at length with the architectural history of the later buildings, and at various points during the perambulation of them read extracts from the famous "Rites" of the quaintly-worded descriptions of the uses to which they were put, as recorded after the Suppression by a former inmate of the monastery. Mr. Hope subsequently conducted a large section of the party round the cathedral church, and explained the ancient arrangements, the nature of which had been so fortunately laid down in "Rites."

At the evening meeting, which the delightful weather allowed to be held out of doors in the courtyard of the castle, the Rev. Dr. Gee read a paper on some points in connexion with the history of Durham Castle.

Raby Castle.

Wednesday, the 22nd, was devoted to visits to Raby and Staindrop. The members first went by train to Bishop Auckland and thence drove to Raby Castle, where Lord Barnard received them and gave a short outline of the history and architectural features of the building. The castle itself, though outwardly a picturesque structure of irregular plan, mostly of the last quarter of the XIVth century, is disappointing inwardly, continuous occupation and changes of fashion and modes of living having so altered it that beyond one side of the hall, parts of the chapel, and the kitchen, with its vaulted cellar, there is little of interest to the antiquary.

Staindrop Church.

The drive was next continued to Staindrop, where, after luncheon, the parish church was visited, and described by the Rev. J. F. Hodgson. It contains, he pointed out, traces of its Saxon nave, through the walls of which arcades were cut in the XIIth century for the added aisles. It was considerably enlarged early in the XIIIth century by the addition of another bay and a western tower to the nave, and by north and south transeptal chapels. The chancel underwent reconstruction about the same time, and still retains triple sedilia and a drain of rich work, reminiscent of the Nine Altars at Durham. The south aisle was enlarged as a chantry chapel about 1344, and the XIIIth century chancel partly rebuilt in 1412, when the church was appropriated to a college of secular priests established here by Ralph Nevill, first Earl of Westmoreland. For their accommodation a fine series of stalls was put in, and in the middle of the chancel was set up the magnificent alabaster tomb with effigies of the earl and his two wives. To the north of the chancel is an original vestry with living-room over, and the nave has a south porch with a stone roof. A small stone porch at the south-east corner of the south aisle is actually a fire-proof vestry to the chantry altar, with its east window cut down into a doorway. The chancel is at present undergoing "restoration," and the great Nevill tomb, which had been relegated towards the close of the XVIIIth century from its original position to a remote corner of the south aisle, is lying in a disjointed condition preparatory to its re-erection a few feet north of its present position. The large wooden monument with effigies of the fifth earl and his two wives is in a similar condition. Both Mr. Hodgson and Mr. Hope condemned the removal, during a former restoration, of the plaster from the walls of the nave and its aisles, and expressed the hope that a similar process now being applied to the chancel walls was but a necessary prelude to their being properly replastered; they also pleaded for the restoration of the great alabaster tomb to its original position in the chancel. On the proposal of Sir Henry Howorth, it was agreed to make representations in the proper quarter for such replacement of the old tombs.

Darlington Church.

From Staindrop the journey was continued to Winston station, and thence by rail to Darlington. Here the fine parish church of St. Cuthbert was inspected under the guidance of the Rev. J. F. Hodgson, who was inclined to agree with the old view that the building was the work of Bishop Pudsey between 1193 and his death in 1195. In the light of later knowledge, however, this opinion cannot logically be upheld. The so-called "rood-loft" in front of the chancel is actually part of an early XIVth century support to prevent the collapse of the eastern side of the central tower.

The evening meeting was occupied by an address from the veteran Canon Greenwell, now in his eighty-ninth year, on the evidence afforded by Great Britain as to the origin and development of certain weapons and implements of the Bronze Age. In illustration of his remarks the Canon exhibited his magnificent and unrivalled collection, including the famous and now historic series of implements found together in the Heathery Burn cave.

Escombe Church.

The programme for Thursday, 23rd, began with a visit to Escombe, where the perfect pre-Conquest church consisting only of a small square chancel and a lofty nave, with later porch, was described by Mr. C. R. Peers, who said that, from a comparison of the work with other and particularly dateable buildings, he was inclined to ascribe it to the IXth century, a view in which others present concurred. M. Lefèvre-Pontilas referred to churches of similar plan and section in the Asturias, which apparently belonged to the same period. Mr. Francis Bond thought that the long-and-short work visible in the building pointed to a much earlier date, and that the chancel arch, like many of the stones used in the walling, was Roman work reused.

Mr. Hope pointed out that until the XIXth century the walls had retained the plaster with which they were meant from the first to be clothed, and that probably the exterior had been similarly treated. Such buildings when whitewashed, as they certainly were, were no doubt the "white churches" of the chroniclers, and Aldhun's church at Durham had been a case in point.

South Auckland Church, etc.

A visit was next paid to St. Andrew's Church at South Auckland, an interesting cruciform structure with aisles to the nave and a western tower, which the Rev. J. F. Hodgson was inclined to ascribe in the main to Bishop Robert Stichill, who held the see from 1261 to 1274. A college attached to the church was founded and reorganised by Bishop Anthony Bek, who was apparently responsible for certain changes in the chancel and other parts of the building. The uppermost stage of the tower was added about 1417, and the fine choir stalls put in by Cardinal Langley. At the west end of the north aisle is an extensive collection of fragments of Saxon crosses and tombstones, together with a wooden effigy of a cross-legged knight and a stone figure of a lady. With these is a large limestone slab with the casements of a small monumental brass, remarkable for having been so cut as to form part of the altar steps, with a section of the brass laid in each of the three divisions.

After luncheon at Bishop Auckland a visit was paid to the splendid chapel of the episcopal residence, which was described by the Rev. J. F. Hodgson. This, he pointed out, had originally been the great hall,

begun by Bishop Pudsey, and almost entirely reconstructed by Bishop Anthony Bek; and consisted of a middle alley with broad side alleys, divided from it by four wide and lofty arches on either hand. Owing to the destruction of the castle chapel under the Commonwealth, the great hall was converted in 1662-4 into a chapel by Bishop John Cosin, to whom are due the clearstory and the splendid flat wooden ceiling, originally richly painted and gilded, the stall-work, the screen from the first bay, which forms an ante-chapel, and the "wind organ" now in a gallery at the west end. The floor was relaid by Bishop van Mildert, and the reredos added by Bishop Lightfoot. The only other interesting part of the castle is a wing begun by Bishop Ruthall and finished by Bishop Tunstall, both of whom have carved their arms upon the work done by them.

Brancepeth Church.

From Bishop Auckland the journey was continued past the site of the Roman fort of *Vinovium* at Binchester, to Brancepeth, where the church was described by Canon Fowler. It was dedicated, he pointed out, in honour of St. Brandon, and was interesting chiefly for its rich and remarkable wood fittings, believed to be the work of Bishop Cosin when rector here from 1626 to the usurpation. They include the whole of the stall-work and chancel screen, the altar, the pulpit, the font cover, several enclosed pews in the transeptal chapels, and the pews throughout the church. From notes taken by him in 1863 Dr. Fowler showed that the church then possessed a reading-desk of equal beauty to the pulpit, and that the pews retained an original disposition, which had since been most unnecessarily destroyed, as well as the doors with which they all were fitted. Over the chancel arch was the original XVth century canopy of the rood-loft, and below that was fixed a piece of panelling with exquisite geometrical tracery, believed to have been brought from Durham after the Suppression. It forms the subject of a memoir by Billings. In the chancel now lie the truly colossal stone figure of a cross-legged knight, believed to represent Robert Nevill, who was killed at Berwick in 1319, and two very fine oaken effigies of Ralph, second Earl of Westmorland, and his wife, Margaret Cobham. Both wear the Yorkist livery collar of suns and roses. These figures now lie upon the base of what was once a high tomb that stood in the middle of the chancel. The church is also of considerable interest architecturally, and chiefly of the XIIIth and XIVth centuries. At the west end of the north aisle is a good collection of ancient monumental slabs, and in the south chapel a fine "Flanders kist," of a date *circa* 1360-70.

Durham and the Evolution of Gothic Architecture.

At the evening meeting Mr. John Bilson read a paper, illustrated by lantern-slides, on the place of Durham in the evolution of Gothic architecture, of which the following is a summary:—

The beginnings of the Norman school are discernible in the abbey church of Bernay, a work of the first half of the XIth century. By the time of the Conquest of England the school was fully formed, and achieving such masterpieces for the time as Jumièges and Saint-Étienne at Caen. The accident of the Conquest led to the transference of the centre of activity from Normandy to England during the last quarter of the XIth century. The Normans developed here the logic of construction, and they were innovators in the practice of expedients which only needed fuller development to reach the essentials of what we call Gothic. Their structural advance receives its most pronounced manifestation in the cathedral church of Durham, which is quite Gothic in construction, though still Romanesque in expression. After the opening of the XIIth century the centre of the Norman school returned to Caen, and there was another important development in vaulting, the sexpartite and similar systems, which contributed much towards ultimate Gothic solution. It was not given to the Normans to achieve the final solution; having done so much, they had built up powerful traditions, which in themselves were a bar to further rapid advance. Thus the architecture of Lower Normandy in the latter part of the XIIth century retains more Romanesque character than contemporary English work, which again retains far more than does Upper Normandy nearer to the Ile-de-France. This last school, one of the poorest of all until the second quarter of the XIIth century, had no well-established traditions to hamper its advance; and, profiting by the experience of its predecessors, adopted and improved upon their expedients, giving them a new and fitting expression, and achieved the final steps in the evolution of Gothic. The glory of its achievement is in no way diminished by the fact that others had preceded it in the earlier stages of the journey, nor are the partial successes of the earlier stages less noteworthy. And one of the buildings which looms out largest in this earlier story is the cathedral church of Durham.

Monkwearmouth Church.

On Friday, July 24, the members journeyed first by train to Sunderland, and thence by road to the ancient church of St. Peter, at Monkwearmouth. Mr. C. R. Peers, who described the building, said that the church was of extremely early construction, and its earliest parts could satisfactorily be dated to probably the year 674. To this date belonged the western portions of the nave and the lower stages of the western tower, which originally consisted of a porch with arched openings in each of its three free sides and a chamber above. This was subsequently carried up as a tower, but at what date is uncertain, the work being apparently of the IXth century, which was seemingly an impossible date historically. The piers of the chancel arch are contemporary with the tower, and had been supposed at one time to belong to a second church of St. Mary, which perhaps stood in line with St. Peter's to the east, but this view could not be upheld. Mr. Peers also called attention to the remarkable sculptures in the lower stories of the tower, and to the extraordinary collection of early carvings, etc., now stored in the vestry. The vicar, the Rev. H. S. Boutflower, pointed out that according to a passage in one of the Venerable Bede's sermons it was the aim in his time to build churches of the same dimensions as those of Solomon's Temple, and the measurements of the Monkwearmouth church in feet corresponded exactly to those of the Temple in cubits.

Hylton Castle.

The journey was next continued to Hylton Castle, where the party was hospitably received by Mr. W. M. Parrington. The Castle, Mr. Hope explained, had owed its origin to one Roman of Hylton, to whom the prior and convent of Durham in 1157 had granted the privilege of having a chaplain to perform divine service in his chapel of Hylton. From Roman down to 1739 the castle had continued as the home of the Hyltons in unbroken male descent, an unusual thing in so unsettled a district. The existing building was but the gatehouse to a large mansion which had never been built, and was the work of William of Hylton between 1376 and 1435. On the inner or eastern face was a large and finely carved representation of the White Hart badge of King Richard II., but the royal banner on the west front bore the arms first adopted by King Henry IV. about 1407. This front is also decorated with a large number of shields of arms, as well as a large banner of the Hylton arms within a canopied niche, now moved from its original place. But the heraldry showed that the shields were of more than one date, and had apparently been collected into their present position. Mr. Hope called attention to the machicolated parapets surmounted by stone figures, among which were the remains of two large images of St. George and St. Michael, each standing on a dragon.

The shell of the chapel, on rising ground to the north-east, was also inspected. This was entirely rebuilt in the third quarter of the XVth century by William Lord Hylton, whose arms it bears, as an aisleless parallelogram, but early in the XVIth century semi-octagonal transepts were thrown out, divided by floors, each into two stories. This interesting structure is now roofless, and falling rapidly into decay. The party then returned to Durham by rail, and after luncheon reassembled at the Castle, which was explained by Mr. C. C. Hodges.

Durham Castle, etc.

Mr. Hodges addressed a few words to the visitors on the Castle generally, and said that the site of the city of Durham was one of great interest from every point of view. Geologically it was of interest as a piece of sandstone rock isolated by the action of the river round it, so conspicuously that there was a tradition that the stone was taken out of the bed of the river and used to build the Cathedral and Castle. As far back as 1532 that tradition was extant. The actual historic evidence they had of any occupation of the plateau on which the Cathedral was built was the coming of St. Cuthbert's body. The building of the Castle did not date earlier than 1072, but there was probably some kind of defensive earthworks on the spot before. The city occupied an oval space of ground something like 1,550 yds. in length and 500 yds. in width. The Castle was built at the north end of the promontory and the Cathedral occupied the termination of it. The site was surrounded by a wall which had two gates and two bridges. The principal gate was the gaol gate in Queen-street, and the other gate the water gate at the end of the North Bailey. Another gate crossed the Bailey near the church of St. Mary-le-Bow, which got the name from the Bow or arch which crossed the street, and which was taken down when the church was rebuilt. The plan of the Castle was a triangle of considerable extent. It was a very large castle, because it was the centre of the Palatinate of Durham, where the bishops lived in regal splendour. They had every regal right over the Palatinate, except that they could not levy taxes to go to war and could not go to war without the permission of the King.

Taking the Castle chronologically, Mr. Hodges first conducted the visitors to the Norman chapel, which he described as one of the most interesting that could be found. The Norman gallery was next visited. This was built by Bishop Pudsey, and here Mr. Hodges remarked that that munificent prelate had two architects, who, while skilled in detail, were not successful as constructive architects, and the building he had erected had failed from structural debility. That part of Durham Castle showed signs of giving way, and had it not been for the action of Bishop Langley in buttressing all the west end would have been in the Wear. Passing down the noble black oak staircase, the visitors descended to the Tunstall Gallery, with its tapestry of the time of Bishop Cosin and its beautiful Norman doorway, and thence returned to the great hall. The bulk of the hall, said Mr. Hodges, was of the time of Bishop Bek, and dated from the XIVth century. The great door and two of the windows belonged to the original building. He lamented that the magnificent oak panelling of the time of Bishop Cosin was destroyed many years ago. A walk along the terrace, from which beautiful views of the city and vicinity were obtained, completed the afternoon's proceedings.

After tea Canon Greenwell met the party in the cathedral library—once the monks' dormitory—and gave an address on the

history and character of the library itself and of the books that composed it. He also discussed the fine collection of Saxon crosses and gravestones from various parts of the bishopric, and referred to the long-standing controversy as to the body of St. Cuthbert, whose skeleton, he had no hesitation in saying, was that now lying beneath the site of the shrine behind the high altar of the cathedral church.

At the evening meeting Mr. Kenneth C. Bayley read a paper in the castle courtyard on some early points in connexion with the history of Durham City.

The speaker said that Framwellgate and Elvet bridges were built in their present position so that they could be commanded from the Castle, for in the days when they were built Durham was the great fortress of the North. The first great change came shortly after the Conquest, when Bishop Flambard levelled the space between the Castle and the cathedral, which was then occupied with mean houses, and made it as plain as a field, in order to lessen the danger from fire to both buildings and to keep them clear of filth. Mr. Bayley went on to narrate many interesting facts about the early history of the city, which was then divided into several divisions, each with its own court. In 1179 Bishop Pudsey granted a charter, which conferred certain mercantile privileges on the inhabitants. In the middle of the XVth century a reactionary policy set in, and the Bishop again exercised a more direct control over the affairs of the city. In 1565 a charter of incorporation was granted, and in 1602 this was succeeded by a more liberal charter. At the end of the XVIIth century the episcopal borough of Durham was virtually independent of the Bishop. Amongst other incidents mentioned in the paper was one which occurred in 1674, when the Archdeacon of Durham was arrested for debt within the cloisters.

Saturday, the 25th, was devoted to excursions to Gainford and Wycliffe churches, Eggleston Abbey, and Barnard Castle.

Gainford Church.

Gainford Church was described by Mr. C. R. Peers, and is an interesting building, mostly of the early part of the XIIIth century, with a fine eastern triplet to the chancel, and an engaged western tower with arches to the aisles as well as the nave. On the north of the chancel is an ancient vestry, and in the north porch is a fine collection of fragments of early crosses and gravestones. In the churchyard in the angle of the chancel and south aisle is a good mediæval tomb to Sir William Pudsey and Elizabeth, his wife, which Mr. Peers suggested would be better cared for if room could be found for it inside the church. A short visit was also paid, by the kindness of the present occupiers, to Gainford Hall, a picturesque structure built by John Cradock in 1600, with a good stucco cornice and oak panelling in one of the lower rooms.

Wycliffe Church.

Wycliffe Church, which was next visited, was also described by Mr. Peers, who pointed out that its chief feature of interest was the early painted glass still remaining in the large XIVth century windows in the south wall. As regards the tracery openings the glazing, though somewhat "restored" is complete, with figures of angels with musical instruments and representations of the Holy Trinity, the Majesty, and Our Lady and Child respectively. The lights were filled with saints under canopies, but portions only of these now remain. Built into the south wall externally is a good gravestone with ornate cross and a pair of shears and incised inscription inlaid with lead to Iseude de Hielagh, wife of Thomas de Thorp.

Eggleston Abbey.

After luncheon at the Morritt Arms at Greta Bridge the journey was resumed to Eggleston Abbey, the picturesque ruins of which occupy a charming site overlooking the River Tees. Mr. Hope explained briefly the history and peculiarities of the Order of Præmonstratensian or White Canons to which the Abbey belonged, and referred to the foundation of Eggleston from the neighbouring Abbey of St. Agatha during the closing years of the XIIth century. To this period belong the north wall and west end of the aisleless nave; but in the middle of the XIIIth century the church was extended eastwards and followed later by a new crossing and enlarged south transept. The north transept was reconstructed about the same time, but its ruins had been removed within the last few years to pave a stable-yard! Lastly, about a century after the foundation, the nave was widened by 6 ft., instead apparently of carrying out a scheme for adding to it a south aisle. Only some remains of the outer walls of the church are now left, with such portions of the eastern range of buildings as have escaped the destroyers of the north transept. These included the vaulted substruction and other parts of the reredorter and what may have been the abbot's lodgings. In the nave of the church are a number of interesting indents of brasses, and a large marble slab, now in three pieces, with the name of Thomas Rokeby, "bastard," and the prayer, "Ihu for thi passions ser, have mersi of thi sinfull her." Mr. Hope pointed out that the abbey, although suppressed with the lesser monasteries, was refounded by letters patent in 1536-7 and survived till the overthrow of the greater houses three years later.

Barnard Castle.

Barnard Castle, which was the last place in the day's programme, was also described by Mr. Hope, but under the disadvantage of a heavy shower, which necessitated the party being crowded into the vaulted basement of the principal tower. The castle is grandly situated on a series of rocky platforms forming the several baileys on a high cliff overlooking the Tees, but its subdivisions are now gardens and orchards, and no general survey of the castle can be made. Mr. Hope pointed out that its plan conformed to that of the Norman mount-and-bailey type, but had been fortified from its foundation by Bernard Baliol before 1130, with walls of stone instead of banks of earth, deirved from the rock on which it stood. The *motte*, or highest part, was encircled by a wall, in the ring of which a later tower had been intruded, as at Conisborough, probably late in the XIIIth century. The basement of this afforded an unusual example of a nearly flat domed vault of stones set on edge.

Pittington Church.

On Monday, the 27th, the party first drove to Pittington Church, an interesting building, which was described by Mr. C. C. Hodges. It has suffered much at the hands of "restorers" and rebuilders, but retains the side walls and remains of the windows of a late Saxon or early Norman nave, with later arcades into the added aisles. The older portions of the north arcade are late Norman with bold spiral bands round the pillars. Outside the north aisle, below the level of the original windows are two blocked loops, some distance apart, which apparently lighted a destroyed chamber of some kind that stood within the aisle.

Lumley Castle.

Lumley Castle, which was next visited, was described by Mr. Hope as one of a group of late XIVth century buildings which illustrated the transition from such great towers as that of Rochester or the White Tower in London to the courtyard type of house, consisting of an open quadrangle with ranges of chambers on all four side and towers at the corners. The Institute had within recent years visited other examples at Middleham, Bolton (begun 1379), Bodiham (1385), and Wressle, and another was to be found at Sheriff Hutton (1382). Lumley Castle was built by Sir Ralph Lumley, who obtained a licence to crenellate from Bishop Skirlaw in 1389, and another from the King in 1392. To him was due most of the existing structure, including the fine display of heraldry over the eastern entrance, but his grandson John, Lord Lumley (1544-1609), was responsible for all the uncusped Tudor windows and the double pile of shields on the west side of the quadrangle. The later alterations to the south and west fronts were carried out by Sir John Vanbrugh between 1721 and 1728 for Richard, the second Earl of Scarborough, but had been projected by the first earl. Mr. Bilson pointed out that the several builders of the northern group of houses, like Lumley, were all related by marriage, and had fought together abroad, and he thought it not unlikely that their castles were built out of the spoil of the French wars. After a perambulation of the principal chambers and an enjoyment of the fine view from the top of the Castle the party continued its journey to Chester-le-Street. Here, after luncheon, a visit was paid to the church, which was described by Mr. C. C. Hodges. The building is architecturally not remarkable, except for its stone spire and the curious anchoridge at the west end of the north aisle, but is noteworthy, apart from its historical associations with the body of St. Cuthbert, which so long rested here, for the curious series of posthumous effigies of ancestors, collected or placed here by John, Lord Lumley, the author of the late sixteenth century changes at the castle.

Finchale Priory.

Finchale Priory was the last objective, and was described by Mr. Hope. Its story, he said, began with that of St. Godric, who was successively a pedlar, a pirate, a palmer, and a pious person, and eventually settled here as a hermit about 1110, and died in 1170. He built at Finchale first a wooden chapel, but afterwards a stone church, in which he was buried. The Priory was founded in 1196 as a cell of Durham, and endowed with the lands of an earlier foundation of Black Canons, established at Baxterwood, nearer Durham. The inmates first used St. Godric's church, but soon began to replace it by a larger structure, with attached monastic buildings, of which considerable remains exist. The church was cruciform with a tower and spire over the crossing and aisles to both choir and nave, but was nearly a century in building. In 1364-1367 the aisles were unrooted and pulled down, the arcades walled up, and new windows inserted in the blocking; probably, as suggested by Mr. C. C. Hodges, to give more light to the unclearstoried choir and nave. The unusual length of the eastern area was no doubt due to the existence therein of St. Godric's tomb, and the church was also remarkable for the cylindrical piers of the steeple. The buildings round the cloister, with the exception of the frater, which stands upon a very perfect subvault, are much ruined, but a large group to the south-east containing the infirmary and prior's lodging, is also fairly perfect, though much encumbered with rubbish and fallen masonry. The site of the priory is of unusual beauty, on a gentle slope beside a bend of the river Wear, with a wooded rocky bank opposite.

In the evening the annual business meeting was held, when reports of the Council and of the Treasurer were presented, showing a most prosperous state of affairs. Various suggestions were also received as to the place of next year's meeting. Lincoln, Oxford, and Tenby being amongst those mentioned, but the choice was, as usual, left to the Council. Votes of thanks were afterwards passed to the University authorities, the owners of houses and castles, the incumbents of the churches visited, to the readers of papers and demonstrations of buildings, and to Mr. W. H. Knowles, the Honorary Secretary of the Congress, through whose untiring efforts the great success of the meeting was so largely due.

Easby and Richmond.

Tuesday, July 28, was devoted to a joint visit of the Institute and the Yorkshire Archæological Society to Easby and Richmond. On arrival at the latter place by special train the party first proceeded, some on foot and some in carriages, to Easby, when the extensive remains of the Præmonstratensian abbey of St. Agatha were inspected under the guidance of Mr. Hope. Its plan, he pointed out, was exceptionally irregular, the cloister being lozenge-shaped instead of square, and the dorter had been squeezed out of its normal position over the chapter-house, etc., and built out on the west. The infirmary block was disposed on the north, but the only way to it was through the church, instead of by the usual passage. For all these irregularities it was difficult to account, inasmuch as there was ample level ground to the east and north. Although the abbey was founded in 1152 there were few traces of any important work before the close of the XIIth century, to which date most of the church had belonged. The infirmary block, the chapter-house, etc., and the western range of buildings were early XIIIth century work, and the frater and its subvault *circa* 1270-80. The western range is partly of two and partly of three stories, and combines in a most ingenious manner the sleeping and other quarters of the canons, with ample but separate accommodation for guests. A move was next made to Easby parish church, where Mr. Peers pointed out its architectural features and the remarkable series of early paintings on the walls and window jambs of the chancel. The party then returned to Richmond, and, after luncheon, proceeded to the site of the Grey Friars monastery. Here Mr. Peers described the main features of friars' houses, and showed how the usual narrow crossing had been surmounted at Richmond by a fine and lofty late XVth century tower, which fortunately remained perfect, with an interesting fragment of the south aisle; but all else had been destroyed. The grandly situated castle was next visited, under the guidance of Mr. Hope, who explained that it was still enclosed by the rubble walls, with herring-bone work in places, erected by its founder, Earl Alan, before 1086. To him was also due the small chapel in one of the mural towers, and the remarkable hall in the south-east corner of the bailey, with its coupled window lights. The early date claimed for these buildings by Mr. Hope was confirmed by Mr. Bilson, who said that the carved capitals of the original entrance, now within the great tower, might have come straight from Normandy; there could be no doubt too as to the early date of the great hall. The great tower, which forms so striking a feature of the castle, was shown by Mr. Hope to have been built over and outside of the original early entrance, probably by Earl Conan, who died in 1171, and from an entry on the Pipe Roll for 1171-2 to have been completed the year after his death, while the castle was in the King's hands. Mr. Hope also referred to the information afforded as to the old arrangements of the castle by an early XVth century drawing of it in the Register of the Honour of Richmond, and by an elaborate survey made, in view of its repair, in 1537-8. The day's proceedings concluded with a visit to the parish church, which was described by Mr. Peers.

Hexham Abbey, Aydon Castle, etc.

Wednesday, July 29, the last day of the meeting, was actually an extra day for visits to Hexham Abbey, Aydon Castle, and the excavations in progress on the site of the Roman town of Corstopitum, near Corbridge. On arrival at Hexham the members were received at the abbey church by the rector, Canon Savage, who referred briefly to the works now being carried out in the building and to the new nave lately added, from the designs of Mr. Temple Moore. Those members, he said, who visited Hexham Abbey twenty-six years ago could not but be struck by the changes that have occurred in the interval. Yesterday, on the first occasion for centuries—probably not since the Early English fabric was built—the old pilgrims' way into the crypt was once again open, as it will be for the future, thus giving easy access to what is without doubt one of the most remarkable ecclesiastical interiors in England. And remarkable was another coincidence, that just prior to the visit of the archæologists to the North on this occasion there should have been discovered the apse of St. Wilfrid's church. Built in 674 these remains, wonderfully preserved, were discovered under the quire floor last May, and round it a remarkable group of Saxon graves. The finding of the apse has given an added interest to the ancient frith stool, the Cathedra of the Kings and Bishops of Northumbria, the Stool of Peace, and the Chair of Sanctuary, which formerly stood in St. Wilfrid's apse. The new nave itself, now completed, makes Hexham a complete church from end to end for the first time since the XIVth century.

Mr. C. C. Hodges next gave an account of the architectural history, and conducted the party round the building. Some remarks were added by Sir Henry Howorth and Mr. Francis Bond, and by Mr. Aymer Vallance, who called attention to the recent destruction of the ancient staircase within the quire screen and to the cutting out and hingeing of the hitherto fixed panels of the screen itself to provide a peep-show from the nave.

After luncheon the party drove to Aydon Castle, a very perfect example of a fortified manor-house of the XIIIth and XIVth centuries, with the living-rooms all on the first floor, the features of which were described by Mr. W. H. Knowles. The journey was next continued to the site of the excavations at Corstopitum, where Mr. R. H. Forster and Mr. Cheeseman described the works now in progress under their direction. A very perfect and interesting fountain-base, discovered late last year, has again been opened out and further explored, and two large granaries west of it have also been uncovered. One of these is constructed of exceptionally well-built ashlar, and had mullioned loops to ventilate the drying channels beneath the stone floor. To the east of the fountain a massive arch, lying just as it fell, had been partly uncovered, with numbers on the stones to mark the order of their building. In the course of the excavations, which have only just been begun for the season, besides the usual finds of pottery, etc. a number of interesting architectural and sculptured fragments have already come to light, including a large slab with the bust of a sun-god or emperor, another with part of the figure of a horse, and sundry portions of moulded stonework.

With the Corstopitum visit the Durham meeting ended. The weather throughout, with the exception of the Barnard Castle day, was delightfully fine, and the success of the meeting may be measured by the fact that upwards of 120 members and their friends took part in it. The arrangements, planned by the local secretary, Mr. W. H. Knowles, were excellent in every way.

SCAFFOLD POLES TAKE ROOT.—The unusual sight of scaffold poles in leaf is to be seen at Hadleigh, in Essex. On the hill there is a house in course of erection, and nearly every one of the scaffold poles has sprouted out. The explanation can only be that use had been made of very new poles, which still contained some sap, and "struck" during the rainy season of the early part of July. The sight of scaffold poles in leaf is certainly somewhat curious.

SITE OF DUKE OF YORK'S SCHOOL.—Mr. Horniman asks the First Commissioner of Works whether, in case of the sale of the site of the Duke of York's School, Chelsea, means will be taken to reserve at least some portion thereof as an open space, and to retain as many of the large trees as may be possible in the thoroughfares that will be laid out.—Mr. Harcourt replies that no plan or scheme has yet been prepared, and he is not able to make any further statement.

ST. ANN'S CHURCH, MANCHESTER.

THE Church of St. Ann bears upon the western wall of its fine square tower an inscription in these words:—

ECCLESIÆ HUJUS SOLA BENEFACTORUM MUNIFICENTIA EXTRUCTÆ
FUNDAMENTA JACTA DIE XVIII
MAII AD MDCCIX
TOTUM OPUS ABSOLUTUM ET
CONSECRATUM DIE XVII JULII
AD MDCCXII.

On the south side, as if with foreknowledge of future needs, the original architect left an inscription panel blank, ready for some later lettering. On this has been incised a few words which tell the story of some recent operations:—

MURORUM SUPERFICIEM
JAM VALDE DISSOLUTAM
ET FRIATAM CIVES QUIDAM
ANNO SALUTIS NOSTRÆ
MDCCCCVIII
INSTAURANDAM PIE
CURABANT.

The stone, in fact, after two hundred years of rude buffeting, had become "greatly softened and worn" (the architect justifies *friatam* against classic objectors as being Vitruvian), and it needed the dutiful generosity of a band of citizens to spend some 4,000*l.* in setting it to rights. In Manchester there is but one colour for stonework, a uniformity of smoke-toned grey, which is, by the way, an astonishing test of strength in a building design; but Mr. Paul Waterhouse, under whom the repairs were carried out, found to his surprise when he first began the work of repair that the designer had executed his pilasters and entablatures in a white stone, and his plain ashlar in red, thereby securing what must in the sunnier days of the XVIIIth century have been a pretty contrast in colour between the strenuous and the quiescent elements of the design. Here came in a knotty problem for the restorer. Should he add to the inevitable "spottiness" of repair by putting patches both of red and of white on to the steady gloom of the old work, or should he mend white work and red alike with one colour of new stone? Mr. Waterhouse decided on red for all—a red stone as nearly as possible identical with the red of the old work; and the result, already rapidly toning down, appears to have justified the choice.

The restorer found that in nearly all cases the worst of the blemishes—and some were very bad—came from the unwise precaution of "strengthening" the stone with iron cramps. Weather had reached the iron; rust had followed, and with it that mysterious irresistible "blowing" of the stone which rust causes.

The tower had been tied round with bands of iron to which—perhaps learning wisdom too late—the architect had applied a coating of lead. But the contractors of two hundred years ago were not infallible; that lead was intermittent; where it failed weather triumphed, and a big block of architrave fell from the top entablature, to call insistently for immediate restoration.

Wrong bedding, again, was naturally a cause of failure in some blocks; naturally also the temptation to this besetting sin of the XVIIIth century mason was most urgent among the pilasters which were, truth to tell, rather "applied" than "engaged." But the carved work was, Mr. Waterhouse reports, of excellent material. Two only of the Corinthian capitals of the lower order needed any repair, and the bold enrichments of the frieze of the apse, for all their projection and undercutting, have been left untouched. The enriched bed mould suffered more.

The spirit of the work was admirably entered into by Mr. Bridgeman, of Lichfield, and his experienced foreman, Mr. Yeoman. Not a stone was disturbed that could safely

be left (even if it were rough or ragged), not a stone was spared that came under suspicion of weakness.

The repair took about four years with certain intermissions. Mr. Waterhouse's frequent visits were supplemented by the inspection of Mr. W. Robson as clerk of works, and Mr. W. Windsor, of Manchester, has been the surveyor. Happily, in spite of the dangers specially incidental to this class of work, not a single accident occurred.

It may be well to record that the oak doorway leading from St. Ann's-square to the vestry was put in from Mr. Waterhouse's design during the present operations.

CHRIST'S HOSPITAL, ABINGDON.

CHRIST'S HOSPITAL at Abingdon, in Berkshire, is one of those charitable institutions founded by the boy king, Edward VI. It is really one of three old almshouses that surround the churchyard of St. Helen's Church. Its most distinctive architectural features are the long range of wooden cloisters, and the tall lantern with a gilded vane rising from the centre of the roof. In the panelled hall beneath the lantern hang portraits of Edward VI. and Sir John Mason, his co-founder in this charity. Among the treasures preserved here is a curious old volume written by Master Francis Little in 1627. It bears the title, "A Monument of Christian Munificence," and is the life-story of the Sir John Mason above mentioned.

SIDNEY HEATH.

INTERNATIONAL ART CONGRESS.

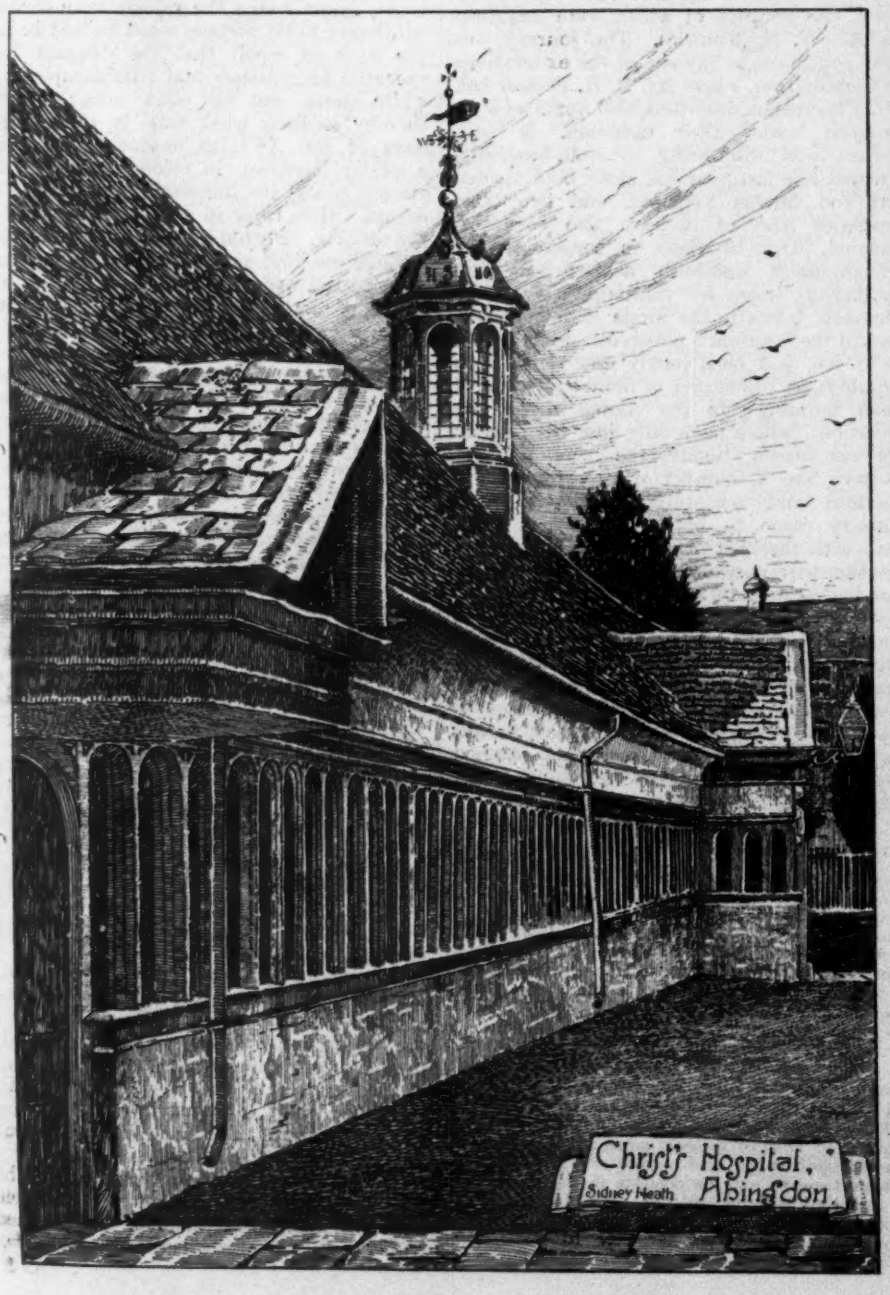
THE third International Art Congress for the Development of Drawing and Art Teaching and their Application to Industries was opened on Monday at the Imperial Institute. Sir John Gorst presided at the commencement of the proceedings, and the Earl of Carlisle was then elected President and took the chair.

Presidential Address.

The President, in a short address, said that this was the third Congress of its kind, the two previous having been held at Paris and Berne respectively. At the Congress there were fifty-one official delegates from thirty-seven countries and more than 1,800 members. He wished the international aspect of the Conference had been more fully realised in this country. At the Paris Conference there were only about twelve British visitors, and they owed the London Congress to the fact that these teachers were vividly impressed by the encouragement which was given their *confrères* abroad. It was impossible to exaggerate the educational effect of the Exhibition which was being held in connexion with the Congress, and this was a movement which ought to be particularly welcomed in this country since it showed the extraordinary variety of ideas and teaching methods and illustrated more vividly than any report could the organisation and equipment of those nations who had a far larger experience than Great Britain of æsthetic and technical education. Of the subjects to be discussed at the Congress the most important to this country in his opinion were those which bore upon the value of co-ordination between various ranks of schools and the application of art to industry. In this matter he thought many foreign countries were their masters, and in this country they had still to learn what they could. The indifference of the Government to art teaching was illustrated by the very marked neglect of that Congress, and he hoped those present would attribute it to extreme stupidity rather than to any intentional rudeness. Perhaps, then, foreign visitors would be able to tell them how it was that their Ministers and members of their municipalities were as well educated as their teachers; the fact that art education did not extend to the public schools and Universities in this country might be a good deal to account for the indifference of the Government. Another difficulty they had to deal with was the divergence in the past of the training of workmen in art schools, and perhaps a still further difficulty was the fact that their governing classes were the prey of the literary gentlemen with theories, and were not capable of judging of the system they knocked up and knocked down.

Disseminating Art in Manchester.

Mr. T. C. Horsfall, in a paper on "Methods of Disseminating Knowledge and Love of Art," said he could easily indicate the methods which seemed to him to be best adapted to disseminate knowledge and love of art in a manufacturing town by describing the methods used by the Committee of the Manchester Art Museum. In 1877 there were large districts in Manchester which were almost exclusively inhabited by workpeople of the poorer class. Owing to the filthiness of the air vegetation was almost completely destroyed, and, owing to the same cause and the comparative poverty of the population, hardly any beauty of colour or form was found in the houses, which were themselves darkened by soot. It was found that a large proportion of the children in these districts were ignorant of all flowers and other country things, though they had learned in schools the names of many of them. No good examples of art were known to them. A museum of a new kind was formed in Ancoats, and in it were placed collections of pictures of wild and garden flowers; trees, their foliage, blossom, and fruit: butterflies, birds, and other creatures; pictures of beautiful scenery near Manchester and elsewhere; pictures to give knowledge of the most striking parts of the earth's surface; pictures of historical scenes and heroic deeds; portraits of historical personages and of local worthies; pictures for children, such as framed sets of plates from Caldecotts & Crane's tales; casts of sculpture, textile fabrics, metal work, pottery, glass, etc.; collections of pictures to illustrate important stages in the development of the art of painting from the time of the cave-dwellers to our own day; collections of pictures illustrating the history of architecture and of sculpture; collections to explain and show the development of the chief reproducing processes, such as wood-engraving, line-engraving, etching, and lithography. All the pictures and other objects were provided with descriptive and explanatory labels, and were arranged in congruous groups. The museum was opened in the evenings and on Sunday afternoons. Every week during the autumn, winter, and spring there were entertainments of good music, lectures, etc. A choral society had been formed, and there was an annual exhibition of plants. In 1895 the time spent by school children in charge of a teacher at the museum was made to count as time spent in school. The committee then appointed a curator to give lessons in the museum on pictures and their subjects to children brought in schooltime from the elementary schools in the district. The Committee also lent 250 collections to the different elementary schools. The art museum of the collections and pictures lent



to schools had had much influence in disseminating knowledge and love of both nature and art, but the art museum had been less successful than it would otherwise have been owing to the insufficiency of its income, which had made it impossible to employ salaried curators to explain its contents to visitors. Dante G. Rossetti, G. F. Watts, Philip G. Hamerton, and Ruskin all showed their approval of the scheme of the museum by valuable gifts to it.

Art in the School and the Home.

Professor A. Keller and M. Léon Rioter contributed a joint paper on this subject. Dealing first with the school, the authors considered that the mural decorations should be quiet but, at the same time, artistic. Schoolmasters might be authorised to use cheap reproductions of artistic decorative subjects, such as frieze borders, and even panels, and the decoration of the room should be completed by good reproductions of famous works of art. Sets of lantern slides should be lent schoolmasters for lectures. It would be a good thing to give children as many pictures as possible as prizes, and they should be simple, easily understood, and well drawn. Children should also be taken to see museums, exhibitions, and monuments by the schoolmaster or other properly qualified person. To carry art into the home the authors suggested that publishers might use carefully chosen reproductions of pictures for classbook covers. The presentation of natural beauty and of art in industries, trades, and in the streets should be the chief preoccupation of modern society. With regard to art in the streets, it was suggested that there should be competitions for signs, and further that architects should be invited to submit plans for public elementary schools. Further local competitions in domestic arts should be organised.

Miss E. P. Hughes (late Principal of the Cambridge Training College for secondary schools) dealt with the subject of school pictures under the three heads of the purposes for which they were required, viz., (*a*) to illustrate lessons; (*b*) to decorate the classrooms and central hall, and (*c*) to form a small picture-gallery. With regard to the decoration of the classrooms and central hall, she insisted that a building first of all should be made to serve the purpose for which it is intended, and in the use of a schoolroom this implied that it should be healthy. The second requisite was that it should be beautiful, but the first beauty at which they should aim was beauty of form and proportion in the structure itself, and almost a necessary part of this beauty was the colour of the walls, ceiling, etc., which either emphasised or hid the beauty of form and proportion. The room would look far more beautiful with two or three fine large pictures of the right kind than with walls covered with small pictures. She thought the decorative school picture must usually be created for this special purpose, and regretted that the very picturesque and paintable beauties of the British Isles had not as yet been treated in suitable school pictures. Each picture should be appropriately placed and suitably framed. The art of sculpture lent itself admirably to school decoration, especially in the form of bas-reliefs, if placed in the right light.

Art and Public Taste.

Mr. T. Delgaty Dunn (Chairman of the Scottish Committee) discussed the subject of "Methods of Disseminating Ideas of Art and Developing Public Taste," and said their function as art teachers in the economy of the school is twofold; first to train the mind through the perception of things, and to develop that muscular control which permitted of their adequate expression; secondly, duly to understand and guide the art impulse, which was the first of the humanities in the child, as in the race. So long as art teaching aimed only at the representations of visualised impressions, art teaching must remain a one-sided and therefore relatively unimportant branch of intellectual training; and the beginning and end of their efforts would fail to awaken in the pupils' minds any kinship of thought to all the great thoughts of the ages. It had been well said that "a country's art, like all its other developments, must be based primarily upon the characteristics of its people." If they desired to improve the art of their country they must quicken the perception of those qualities that went to constitute art, that was, they must improve the artistic taste of the nation. The suggestion had frequently been made that a Minister of Fine Arts should be appointed to concern himself with questions of art and public taste. He, for one, had no faith in the improvement of public taste by legislation. Any appeal to the masses, to be effective, must begin when the mind was plastic and capable of receiving and retaining impressions. As to adults, such an appeal would only affect the small number whose regard for art matters was already to some extent formed. Their work lay with the young, and it was to them they must look with hope for any widespread measure of success in their efforts. If art, whether in the home or in public galleries and museums, was ever to be other than a weariness in later years, pupils must early become accustomed to regard pictures, sculpture, and architecture with intelligence. Otherwise great and valuable collections would exert no more beneficial influence, either on the industrial arts or on the art culture of a people, than would a great library on a community ignorant of the art of reading. To come closer to the question of the dissemination of art ideas. In the words of Sir Joshua Reynolds, "it is the natural progress of instruction to teach first what is obvious and perceptible to the senses, and from hence proceed gradually to notions large, liberal, and complete, such as comprise the more refined and higher excellences in art." The creative use of nature's materials for human purposes, which they called "building," seemed at once the obvious and natural basis of study, affording, as it does, the most apparent and permanent form of national history. By the study of buildings he did not mean a descriptive account of the mere edifices, but the study of the relation of the architecture to the land and its resources, to neighbouring influences, as well as to religion and climate, war and commercial intercourse. The means of illustration was readily found in the lantern and good slides. Thus considered, the environment, texture, light and shade, relative proportions, and their influence and effect, could be seen and explained. Needless to say, however, the extent to which this kind of study could be carried on would depend on the age of the pupils, the time at the teacher's disposal, and the personal interest he felt in the subject. For older pupils an explanation of the functional meaning of the construction and ornament of buildings would be of vital importance. Computed at its lowest, the beneficial effect that a review of fine architectural examples would have on the minds of pupils was incalculable. Learning might be unconscious, but learn they must. Where sculpture had formed part of a scheme in an architectural composition, it would naturally be considered at the same time, and in relation to the building. Later, it might be illustrated and explained in closer detail. The study of pictures could be treated in simple interesting ways by lantern reproductions, good prints, or by both. Colour study undoubtedly required to be systematic, and given a larger share of time and attention.

SECOND DAY'S PROCEEDINGS.

Sir John Gorst presided at the second sitting of the Congress on Tuesday.

Apprenticeship and Education.

Professor W. R. Lethaby read a paper on "Apprenticeship and Education." He said:—

"All I have to say on this theme is an amplification of the idea that all education should be apprenticeship, and all apprenticeship should be education. Education has become, in the thoughts of many, far too much a mere abstract grammar, and far too bookish. This bookish method has invaded even art education. Instead of learning directly how to draw in the simplest and yet surest way, one is supposed to learn first all about drawing in various subdivisions and artificial compartments, as, freehand drawing, model drawing, perspective drawing, life drawing, and the like. Of course it is convenient to divide up a big subject like drawing into firstly, secondly, and thirdly, and the names freehand model, shaded drawing from the cast, and the rest are as serviceable as any others, if it can be only made clear in the student's mind that they are but many words for the one thing, drawing, and that the end of drawing is to represent an object or to convey an idea, not according to this or any other classification, but in the most effective way possible. These elaborate approaches to a practical subject, a form of *gymnastic* like drawing, are very wasteful of time and very destructive of confidence. It is as if one had to learn all about swimming under hydrostatics and mechanics before entering the water.

The great end is production, the great thing is the trade, the craft, and sufficient culture can be hung up to any sufficient trade. The ordinary University course in England is really, and has been developed historically as, a preparaton for the vocation of being a landed proprietor or a clerk in orders. Primarily it was an apprenticeship to the callings depending on letters; its whole course and degrees are parallel to the years of apprenticeship, and to the taking of the mastership in any of the old callings regulated by guilds, but those callings provided also other forms of education. A University, indeed, is a Guild of Letters, and only one of several guilds. Although a certain amount of differentiation is found in University courses for those who are to follow medicine, law, and the like; men who are to practise arts, as painters, sculptors, musicians, builders, are not likely to pass through such a course without injury to their force and artistic gifts. What is wanted is a rational recognition of the fact that as life is a many-sided thing, so education must have many forms. When a great and universal education comes, the principal activities of life will have to be grouped into several divisions, faculties, or guilds, and then, I have no doubt, each typical faculty will make rules for proper education and apprenticeship in the given form of life, thus approximating once again to the old guild system.

The unit for regulating education is properly, it seems to me, the organised art or craft, that is to say, its Guild. All proper education is the opening up of a necessary and beneficent life occupation. The exercise of such a calling furnishes the best and largest education in life itself. Drawing is best taught along with apprenticeship to a craft, or otherwise it becomes so generalised that it is difficult for the ordinary student to see its application, and it becomes only a "subject." In thus generalising it into a grammar apart from its application, the most valuable parts have often been forgotten. These most valuable parts are, I consider, (1) the bringing before the student fine material on which he forms his taste; (2) the unconscious absorption of facts not only as to the shape of man, but fine ornamental forms, letters, heraldry, symbols, etc.; (3) the collection of examples for use, so that if one wants a vine, a rose, a ship, or a stag, there is a study of it already laid up for reference. The old masters drew with this object, and that is why their drawings were treasured and handed on. Modern masters, like Alfred Stevens or Burne-Jones, drew in this way to store up observations, but how late in the day the idea comes to most students that their studies are not (for example)

mere "Life drawings," but observations of attitude and action forming so much valuable stock-in-trade! These supplementary purposes of learning drawing have been, I think, so much forgotten because drawing has been so divided off from the crafts, even from the craft of painting, and I, for my part, think that all advanced drawing should be carried on in association with the learning of a craft, be it carpentry or sculpture; nothing else makes it sufficiently real and vital, a cabinet-maker or silver-worker, in learning to draw, should accumulate quite a museum of examples.

Many approaches to the apprenticeship ideal are being made, I hope, but with the statistical details I do not propose to attempt to deal, and I confine myself only to the idea. The great object of specific education seems to me to be the acquisition of a worthy craft by which to live. There is quite enough which belongs to, or can be properly associated with, all such callings to open out a way to raise up diverse forms of culture; the rest is converse and commerce with nature, men, and books."

Professor Beresford Pite said he wished to point out in regard to the building arts it was essential that the teaching of drawing in the building trades should mean this—that they were not teaching drawing on paper with pencil and indiarubber, but were teaching drawing on stone with steel tools; with woodwork and joints; and with all the muscular force of their biceps with a hammer on the anvil. It was perfectly obvious that the drawing they taught the child was futile if it was simply done by lead-pencil and indiarubber. The great thing was production. A little example of the effect of this method of teaching would, he thought, carry conviction to teachers. For some 500 years the building arts of England grew up without the assistance of English blacklead and American indiarubber. During these 500 years, from the time of the Norman Conquest to the time of the Renaissance, every building art in England developed a power of drawing in a way that had never been realised since. Inasmuch as their subject was apprenticeship and education with a view to production, he ventured to urge upon the Conference that in the building trades—and it was equally true of nearly all the applied arts—where form was not only indispensable but inevitable, that form could only be governed by drawing, could only show any refinement and expression if the drawing was inculcated with the building material and was face to face with the building facts. This was shown not only in England, but on the continent of Europe, in stonework, woodwork, and ironwork. He earnestly directed the attention of art teachers to that.

Professor Lethaby, replying to various speakers, said he was speaking of the theory of education for all types of life in all ages—ten thousand years ago and ten thousand years hence. The one suggestion he was anxious to lay before them was this—that whatever might be the difficulties of the moment, yet at the bottom and for all time the type of education must be settled by a general classification, whatever that might be, in which the form of life might run. Whether it be painting, sculpture, or architecture, or baking or chimney-sweeping, the centre of organisation for education would be organised craft.

Professor T. de Praetere (Zurich) followed with a paper on "The Education of Apprentices and Craftsmen for Industrial Art," in which he remarked that the greater part of the work produced nowadays was hopelessly superficial in intention and the grand traditions of the great manufacturers—fine construction, solidity, and quality—were forgotten. Form was dependent upon technique, but, notwithstanding the possibilities of novelty of form offered by modern machinery, so far little had been attempted but imitation of the handmade. A rationally and logically constructed article was not necessarily a work of art, and upon this truth was planted the flag of æsthetic revolution. Apprentices should begin their studies with technical work. Evening classes should be started for artisans, where they would realise the innumerable possibilities of their craft, and thus prevent their work from becoming stereotyped. Instruction should be based upon a fundamental principle applicable to all branches of industrial art—the "onlie begetter" of unity in diversity. From this harmony of handicrafts the style of the future might spring.

Organisation of Professional Art Training.

Mr. E. R. Taylor (late Headmaster of the Birmingham School of Art) addressed the Congress on "The Organisation of Professional Art Training," and said that about eighty years ago an epidemic broke over the western world, the rash being, perhaps, most evident in England. The rash took the form of assertive ugliness, shams, and an intensified commercialism. This ugliness appeared first in furniture and other articles of daily use, and then in buildings, as opportunity offered; marring their ancient cities, changing many a comely town, until now they could only be compared to beautiful windows with nearly every pane broken and stuffed with dirty rags, and desecrating many villages with suburban villas and rows of workmen's ugly houses. He had lived long enough to have seen the beginnings of this evil growth of ugliness in many places, but all could see how virulent was the poison and how rapidly it could act by looking at the destruction their example had wrought on Japan, whose arts were now like sweet flowers trailing in the mud. No wonder that tradition, the instinct of rightdoing, died, though, happily, they still possessed much inherited skill. There was an imperative need now to restore that balance in the development of their faculties and to get back that sense of fitness and rightdoing possessed by their forefathers. It followed, then, that at least until art was made an essential in all their universities and schools in the same manner as were the present essentials, the primary object of technical, craft, and art schools must be to develop and train that innate vision of beauty which he believed to be possessed by all, and to do this by the simplest, quickest, surest, and most economical means, and by a craft common to most industries. This was provided by drawing, using the word in its widest sense. The training in art of both worker and purchaser had already influenced their industries, and though the best modern work still bore some traces of the strain of constant effort against exciting conditions, and though they were still troubled with manufacturers' parodies of the efforts of Wm. Morris, Mr. Walter Crane, and others, under the name of "New Art," and sprigs of natural forms were being splashed and carved too lavishly, there was much right work being done even in manufactories which a few years ago were impregnable. Even architects had ceased debating whether they were artists or professionals, and some modern buildings were also architecture, interesting to that benighted creature, the artist, and to an increasingly discriminative public. They began late on the downgrade, and the average architect of to-day, with his "Free Dutch Renaissance" and his notions of the quaint and the picturesque, was the most hopeless to get on an ascending plane. The text that might well be taken for all schools was, "The artistic faculty should be developed before the mind is burdened with mechanical knowledge."

Professor Viktor Tardos dealt with the subject of "The Training of the Imagination in Figure Composition."

Mr. W. H. Berry, in the course of a paper on "The Training of Craftsmen in Schools of Art," said that it was often remarked that their art schools had no appreciable effect on the district in which they were situated, and this could only be remedied by two means, *i.e.*, first by the decentralisation of schools and secondly by making them practical.

Professor Paul Valet (Paris) dealt with the subject of drawing in technical education, and advocated that the total time given to drawing should be six hours at least per week in primary and ten hours in secondary schools, and should be divided with reference to the particular profession which was being studied—between geometrical drawing, plastic drawing, and modelling.

[Our Report will be continued next week.]

Legal Column.

RIGHTS IN UNPUBLISHED DRAWINGS.

THE important case of Mansell *v.* Valley Printing Company, which we commented upon in the *Builder*, April 18, has been carried to the Court of Appeal, where the decision of the judge of the Chancery Division has been affirmed. It will be remembered that the plaintiff had engaged an artist to produce for him certain pictures suitable for advertisements; someone in the plaintiff's employ had surreptitiously made copies of these pictures and sold the copies to the defendants, who had perfectly innocently purchased them and published them before the plaintiff had either published them or registered them under the Fine Arts Copyright Act, 1862. The defendants had offered to stop publication and to deliver up all copies, but the plaintiff claimed damages since the prior publication had rendered the pictures useless to him. The damages were the price he had paid the artist for producing the pictures. The case involved no question of copyright, but turned on the rights of the plaintiff at common law prior to publication, and the Court of Appeal affirmed the proposition that an author has a proprietary right in his productions before publication; that the owner of an unpublished picture stands in the same position, and that an action at common law will be against any person who publishes or produces the same without his consent, whether innocently or not. This right extends to lectures orally delivered in classrooms and also to photographs.

WORKMEN'S COMPENSATION.

Two important decisions have recently been given by the Court of Appeal under the Workmen's Compensation Act, 1906. They turn upon the distinction between employment such as will render the person engaged a "workman" within the meaning of the Act and "employment of a casual nature," which only brings the employed within the Act if he is employed for the purposes of the employer's trade or business. In Chamberlain *v.* Weston (the *Builder*, p. 113) the employer was the owner of certain house-property, and he employed the applicant as handyman to do certain jobs on the houses at so much an hour. It has already been decided by the Court of Appeal that the owning of houses is not carrying on a trade or business (see Bargewell *v.* Daniel, the *Builder*, December 7, 1907); therefore, if he was casually employed, this man would have no claim under the Act. The Court held that he was serving under a contract of service, and was a "workman" within the Act, and the finding in this case has some light thrown upon it by the decision in another case, Dewhurst *v.* Mather, where a more detailed judgment was delivered. In that case a woman was engaged to come to a private house and do laundry work every Friday and on alternate Tuesdays, and the Court found that this was a periodical engagement for definite periods and not of a casual nature. These cases, compared with Hill *v.* Begg (the *Builder*, July 4 last), where a man was summoned from time to time by postcard to clean windows when required at a private house and his employment was held to be of a casual nature, should give

employers some idea as to their position. In this last case the Court of Appeal pointed out that each job stood by itself and that there was no promise of further employment held out, for although the practice had been to send for the same man this was no contract that it would be continued.

TRADE UNIONS AND THE PARLIAMENTARY LEVY.

The decision of a judge of the Chancery Division in the case of Osborne *v.* the Amalgamated Society of Railway Servants is of considerable importance. The society in question has recently amended its rules, and it is now a condition that all candidates for the Parliamentary representation of the union "shall sign and accept the conditions of the Labour Party and be subject to their whip." The plaintiff had brought this action to obtain a declaration that the rules as altered were invalid and the amendment *ultra vires*. The decision of the Court upon whether technicalities had been observed in passing the rules is of little importance; it is sufficient to say that the Court held upon the authority of cases decided under the Friendly Societies Act and Building Societies Acts that the rules, having been duly registered, were binding; the real importance of the case lies in the decision that the rules were *intra vires*. It has already been decided in the case of Steele *v.* South Wales Miners' Federation, which we discussed in the *Builder*, June 26, 1907, that the provision of a Parliamentary representation fund is within the scope of a trade union's powers, and the Court in the case under discussion has now decided that a resolution that representatives supported out of that fund shall support a particular political party is a matter affecting the internal policy of the unions with which the Courts will not interfere. This decision is a corollary to that in Steele's case, but quite apart from the internal politics of trade unions it raises a very serious industrial question. There can be little doubt that at the time the Trade Unions Act of 1871 and 1876 came into force these societies were regarded as trade societies and not as political organisations. They bring compulsion to bear upon their members in connexion with their trade and not in connexion with politics. Non-union men are objected to by union men not because of their political opinions, but because they represent free labour, and compulsion of all kinds is resorted to, including strikes and personal violence, to oblige men to join the unions. Thus men who wish to ply their ordinary avocation and obtain a livelihood are compelled to join the unions, and the above cases show that when they have done so they can further be compelled to subscribe to a political party, whatever may be their personal convictions. The Trades Disputes Act, 1906, has recently enlarged the powers of compulsion, and it will precipitate industrial crises if these powers are exerted by either masters or men to forward their political ends. Legislation seems now to be urgently required to keep these societies within their legitimate sphere as industrial societies.

NUISANCE FROM DRAINAGE.

Under the above heading in our issue for June 20 last we noted the case of Price's Patent Candle Company *v.* London County Council, which raised a most important issue in connexion with the drainage of the metropolis to the south side of the river. The defendants have erected a pumping-station, and in times of flood or heavy rain they pump the storm-water into a culvert which leads into Battersea Creek. This storm-water is mingled with sewage, and the plaintiffs, who own the land on each side of the creek and carry on their business there, complained of the nuisance, and sought to prevent the defendants continuing their pumping operations. The case has already reached the Court of Appeal, and that Court has affirmed the decision of the judge of the Chancery Division, who had granted the injunction prayed for. The County Council contended that they were acting under statutory authority, the Metropolis Management Act, 1855, sect. 135, and the Metropolis Management Amendment Act, 1858, sects. 1 and 24, being mainly relied upon. The Court of Appeal considered that, far from these statutes authorising the course adopted by the Council, the policy expressed by the legislation was to prevent the discharge of sewage into the Thames, and therefore into this creek, and that the creation of a nuisance was expressly prohibited. In the Court below it was stated that the decision in this case would necessitate a reconstruction of the whole sewage system, involving an expenditure of some sixty million pounds, but it is satisfactory to find that the Court of Appeal considered this apprehension unfounded on the evidence, and that the difficulty can be overcome at moderate expense and without interference with the general drainage system. This view, of course, has nothing to do with the law administered, but in the interests of the ratepayers it is to be hoped it may prove correct.

SEWERS AND TRADE EFFLUENT.

It is satisfactory to note that the case of Brook *v.* Meltham Urban District Council (noted the *Builder*, July 11) has been carried to the Court of Appeal, and that judgment has now been delivered placing the matter on the footing we indicated in our Note as being only equitable. The question was whether the plaintiffs were entitled to pass the refuse from their works down the sewers under the provisions of the Rivers Pollution Act, 1876. It was proved that the sewers themselves were of sufficient capacity to enable this to be done, but not the purification works, but the divisional Court felt constrained to hold that sect. 7 of the Act applied only to the actual sewers and did not embrace the other works. The Court of Appeal has now held that the proviso to sect. 7: "Provided also that no sanitary authority shall be required to give such facilities when the sewers of such authority are only sufficient for the requirements of their district . . . . " includes the whole sewage system. The opposite finding would, as we pointed out, have placed a very severe burden on the shoulders of the ratepayers.

THE HOUSING AND TOWN PLANNING BILL.

THE further consideration of clause 11 was proceeded with at the last meeting of the Committee prior to the recess on Thursday of last week.

Replying to Mr. Morrell, Mr. Burns said he would regard the appointments of Commissioners as a default authority as being to a great extent destructive both of the principle and objects of the Bill.

On subsection 3 of the clause, which provides that if in the case of non-compliance with an order made on the council of a county district, the Local Government Board, may, if they think fit, instead of enforcing the order against the council, make an order directing the county council to carry out the work, Mr. Ryland Adkins moved an amendment to provide that the power should only be exercised with the consent of the county council. He appealed to the President of the Local Government Board not to force this duty upon unwilling county councils, but to work in harmony with them.

Mr. Burns said that county councils need not be under any fear that the Local Government Board would use their power harshly, and he really did not think the amendment was necessary. He sympathised with its spirit, however, and for that reason was willing to accept it.

Sir J. Dickson Poynder remarked that he thought the county councils were quite reasonable in asking that their consent should be obtained before they were compelled to undertake work which the council of an urban or rural district refused to do.

Mr. Rogers, in supporting the amendment, said the more he discussed this question the more he was convinced that the real solution of the whole matter was to give the county council proper supervising authority over rural districts and small urban districts.

Mr. Morrell said he thought it was desirable to give the Local Government Board full discretion against whatever body it thought best, in order to get cottages built.

The amendment was carried.

Mr. Burns had the following amendment on the paper—to add the following subsections at the end of the clause:—

"(5) Where the council of a county are of opinion that for any reason it is expedient that the council should exercise as respects any rural district in the county any of the powers of a local authority under Part III. of the principal Act, the council, after giving notice to the council of the district of their intention to do so, may apply to the Local Government Board for an order conferring such powers on them.

(6) Upon such an application being made the Board may make an order conferring on the county council as respects the rural district the powers of a local authority under Part III. of the principal Act, and thereupon the provisions of the Housing Acts (including those enabling the Public Works Loan Commissioners to lend and fixing the terms for which money may be lent and borrowed) shall apply as if the council were a local authority under Part III. of the principal Act.

Provided that the expenses incurred by the county council under any such order shall be defrayed as expenses for general county purposes.

(7) Where under any such order the county council have executed any works in a rural district they may transfer the works to the council of that district on such terms and subject to such conditions as may be agreed between them.

Sir F. Channing, the Chairman, said he had given the amendment most careful consideration, and had come to the conclusion that, as it raised a very important point and one which was quite new, he must rule it out of order. It could, however, be taken as a new clause at the end of the Bill.

Mr. Burns said he regretted the decision of the Chairman, but, of course, he must respectfully accept it. Under the circumstances he would suggest that the Committee did not discuss clause 13 until after the recess. That clause defined the duty of the local authority as to the closing of houses considered unfit for human habitation, and his proposed amendment would greatly influence the Committee on any decision they might come to on that clause.

The suggestion of the right hon. gentleman postponing the consideration of clause 13 until the next meeting of the Committee was accepted.

Mr. Guinness proposed an amendment to the effect that clause 11 should not apply to the London County Council or the county of London. He said that in London a very large sum had been spent and a great deal of trouble taken by the various authorities to make housing as self-supporting as possible. The London County Council, apart from the 30,000 people who had been rehoused in connexion with public improvements and the clearances of insanitary areas, had housed 13,000 on sites under Part III. of the Act, and they proposed to go on housing. They desired to have a free hand in the matter, and they thought it was very undesirable that they should perhaps be compelled to build houses on an uneconomical basis just to satisfy the requirements of four householders who wished to have part of their rents paid out of the rates. The London County Council quite sympathised with the object of the clause in so far as it affected rural and small district areas, but they thought that London might well be exempted from its provisions.

Mr. Burns said that however desirable it might be that the London County Council should have a free hand in this matter, he really could not give it as asked for in the amendment. He could not differentiate in the Bill between London and the provinces. All the safeguards that the hon. member sought to secure for the London County Council by the Bill not being applied to London could be, and were, secured by administrative and departmental action.

The amendment was by leave withdrawn, and the clause as amended was agreed to.

Clause 12 was passed without discussion, and the Committee adjourned till Tuesday, October 13.

SECONDARY SCHOOL, HEBDEN BRIDGE, HALIFAX.—The foundation-stone has just been laid at Hebden Bridge of a new secondary school. The school is to be dual, and the total estimated cost is 10,950*l*. It will accommodate 150. Messrs. Sutcliffe & Sutcliffe are the architects, and Mr. T. Wild the contractors.

mere "Life drawings," but observations of attitude and action forming so much valuable stock-in-trade! These supplementary purposes of learning drawing have been, I think, so much forgotten because drawing has been so divided off from the crafts, even from the craft of painting, and I, for my part, think that all advanced drawing should be carried on in association with the learning of a craft, be it carpentry or sculpture; nothing else makes it sufficiently real and vital, a cabinet-maker or silver-worker, in learning to draw, should accumulate quite a museum of examples.

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Professor T. de Praetere (Zurich) followed with a paper on "The Education of Apprentices and Craftsmen for Industrial Art," in which he remarked that the greater part of the work produced nowadays was hopelessly superficial in intention and the grand traditions of the great manufacturers—fine construction, solidity, and quality—were forgotten. Form was dependent upon technique, but, notwithstanding the possibilities of novelty of form offered by modern machinery, so far little had been attempted but imitation of the handmade. A rationally and logically constructed article was not necessarily a work of art, and upon this truth was planted the flag of æsthetic revolution. Apprentices should begin their studies with technical work. Evening classes should be started for artisans, where they would realise the innumerable possibilities of their craft, and thus prevent their work from becoming stereotyped. Instruction should be based upon a fundamental principle applicable to all branches of industrial art—the "onlie begetter" of unity in diversity. From this harmony of handicrafts the style of the future might spring.

Organisation of Professional Art Training.

Mr. E. R. Taylor (late Headmaster of the Birmingham School of Art) addressed the Congress on "The Organisation of Professional Art Training," and said that about eighty years ago an epidemic broke over the western world, the rash being, perhaps, most evident in England. The rash took the form of assertive ugliness, shams, and an intensified commercialism. This ugliness appeared first in furniture and other articles of daily use, and then in buildings, as opportunity offered; marring their ancient cities, changing many a comely town, until now they could only be compared to beautiful windows with nearly every pane broken and stuffed with dirty rags, and desecrating many villages with suburban villas and rows of workmen's ugly houses. He had lived long enough to have seen the beginnings of this evil growth of ugliness in many places, but all could see how virulent was the poison and how rapidly it could act by looking at the destruction their example had wrought on Japan, whose arts were now like sweet flowers trailing in the mud. No wonder that tradition, the instinct of rightdoing, died, though, happily, they still possessed much inherited skill. There was an imperative need now to restore that balance in the development of their faculties and to get back that sense of fitness and rightdoing possessed by their forefathers. It followed, then, that at least until art was made an essential in all their universities and schools in the same manner as were the present essentials, the primary object of technical, craft, and art schools must be to develop and train that innate vision of beauty which he believed to be possessed by all, and to do this by the simplest, quickest, surest, and most economical means, and by a craft common to most industries. This was provided by drawing, using the word in its widest sense. The training in art of both worker and purchaser had already influenced their industries, and though the best modern work still bore some traces of the strain of constant effort against exciting conditions, and though they were still troubled with manufacturers' parodies of the efforts of Wm. Morris, Mr. Walter Crane, and others, under the name of "New Art," and sprigs of natural forms were being splashed and carved too lavishly, there was much right work being done even in manufactories which a few years ago were impregnable. Even architects had ceased debating whether they were artists or professionals, and some modern buildings were also architecture, interesting to that benighted creature, the artist, and to an increasingly discriminative public. They began late on the downgrade, and the average architect of to-day, with his "Free Dutch Renaissance" and his notions of the quaint and the picturesque, was the most hopeless to get on an ascending plane. The text that might well be taken for all schools was, "The artistic faculty should be developed before the mind is burdened with mechanical knowledge."

Professor Viktor Tardos dealt with the subject of "The Training of the Imagination in Figure Composition."

Mr. W. H. Berry, in the course of a paper on "The Training of Craftsmen in Schools of Art," said that it was often remarked that their art schools had no appreciable effect on the district in which they were situated, and this could only be remedied by two means, *i.e.*, first by the decentralisation of schools and secondly by making them practical.

Professor Paul Valet (Paris) dealt with the subject of drawing in technical education, and advocated that the total time given to drawing should be six hours at least per week in primary and ten hours in secondary schools, and should be divided with reference to the particular profession which was being studied—between geometrical drawing, plastic drawing, and modelling.

[Our Report will be continued next week.]

Legal Column.

RIGHTS IN UNPUBLISHED DRAWINGS.

THE important case of Mansell *v.* Valley Printing Company, which we commented upon in the *Builder*, April 18, has been carried to the Court of Appeal, where the decision of the judge of the Chancery Division has been affirmed. It will be remembered that the plaintiff had engaged an artist to produce for him certain pictures suitable for advertisements; someone in the plaintiff's employ had surreptitiously made copies of these pictures and sold the copies to the defendants, who had perfectly innocently purchased them and published them before the plaintiff had either published them or registered them under the Fine Arts Copyright Act, 1862. The defendants had offered to stop publication and to deliver up all copies, but the plaintiff claimed damages since the prior publication had rendered the pictures useless to him. The damages were the price he had paid the artist for producing the pictures. The case involved no question of copyright, but turned on the rights of the plaintiff at common law prior to publication, and the Court of Appeal affirmed the proposition that an author has a proprietary right in his productions before publication; that the owner of an unpublished picture stands in the same position, and that an action at common law will be against any person who publishes or produces the same without his consent, whether innocently or not. This right extends to lectures orally delivered in classrooms and also to photographs.

WORKMEN'S COMPENSATION.

Two important decisions have recently been given by the Court of Appeal under the Workmen's Compensation Act, 1906. They turn upon the distinction between employment such as will render the person engaged a "workman" within the meaning of the Act and "employment of a casual nature," which only brings the employed within the Act if he is employed for the purposes of the employer's trade or business. In Chamberlain *v.* Weston (the *Builder*, p. 113) the employer was the owner of certain house-property, and he employed the applicant as handyman to do certain jobs on the houses at so much an hour. It has already been decided by the Court of Appeal that the owning of houses is not carrying on a trade or business (see Bargewell *v.* Daniel, the *Builder*, December 7, 1907); therefore, if he was casually employed, this man would have no claim under the Act. The Court held that he was serving under a contract of service, and was a "workman" within the Act, and the finding in this case has some light thrown upon it by the decision in another case, Dewhurst *v.* Mather, where a more detailed judgment was delivered. In that case a woman was engaged to come to a private house and do laundry work every Friday and on alternate Tuesdays, and the Court found that this was a periodical engagement for definite periods and not of a casual nature. These cases, compared with Hill *v.* Begg (the *Builder*, July 4 last), where a man was summoned from time to time by postcard to clean windows when required at a private house and his employment was held to be of a casual nature, should give

employers some idea as to their position. In this last case the Court of Appeal pointed out that each job stood by itself and that there was no promise of further employment held out, for although the practice had been to send for the same man this was no contract that it would be continued.

TRADE UNIONS AND THE PARLIAMENTARY LEVY.

The decision of a judge of the Chancery Division in the case of Osborne *v.* the Amalgamated Society of Railway Servants is of considerable importance. The society in question has recently amended its rules, and it is now a condition that all candidates for the Parliamentary representation of the union "shall sign and accept the conditions of the Labour Party and be subject to their whip." The plaintiff had brought this action to obtain a declaration that the rules as altered were invalid and the amendment *ultra vires*. The decision of the Court upon whether technicalities had been observed in passing the rules is of little importance; it is sufficient to say that the Court held upon the authority of cases decided under the Friendly Societies Act and Building Societies Acts that the rules, having been duly registered, were binding; the real importance of the case lies in the decision that the rules were *intra vires*. It has already been decided in the case of Steele *v.* South Wales Miners' Federation, which we discussed in the *Builder*, June 26, 1907, that the provision of a Parliamentary representation fund is within the scope of a trade union's powers, and the Court in the case under discussion has now decided that a resolution that representatives supported out of that fund shall support a particular political party is a matter affecting the internal policy of the unions with which the Courts will not interfere. This decision is a corollary to that in Steele's case, but quite apart from the internal politics of trade unions it raises a very serious industrial question. There can be little doubt that at the time the Trade Unions Act of 1871 and 1876 came into force these societies were regarded as trade societies and not as political organisations. They bring compulsion to bear upon their members in connexion with their trade and not in connexion with politics. Non-union men are objected to by union men not because of their political opinions, but because they represent free labour, and compulsion of all kinds is resorted to, including strikes and personal violence, to oblige men to join the unions. Thus men who wish to ply their ordinary avocation and obtain a livelihood are compelled to join the unions, and the above cases show that when they have done so they can further be compelled to subscribe to a political party, whatever may be their personal convictions. The Trades Disputes Act, 1906, has recently enlarged the powers of compulsion, and it will precipitate industrial crises if these powers are exerted by either masters or men to forward their political ends. Legislation seems now to be urgently required to keep these societies within their legitimate sphere as industrial societies.

NUISANCE FROM DRAINAGE.

Under the above heading in our issue for June 20 last we noted the case of Price's Patent Candle Company *v.* London County Council, which raised a most important issue in connexion with the drainage of the metropolis to the south side of the river. The defendants have erected a pumping-station, and in times of flood or heavy rain they pump the storm-water into a culvert which leads into Battersea Creek. This storm-water is mingled with sewage, and the plaintiffs, who own the land on each side of the creek and carry on their business there, complained of the nuisance, and sought to prevent the defendants continuing their pumping operations. The case has already reached the Court of Appeal, and that Court has affirmed the decision of the judge of the Chancery Division, who had granted the injunction prayed for. The County Council contended that they were acting under statutory authority, the Metropolis Management Act, 1855, sect. 135, and the Metropolis Management Amendment Act, 1858, sects. 1 and 24, being mainly relied upon. The Court of Appeal considered that, far from these statutes authorising the course adopted by the Council, the policy expressed by the legislation was to prevent the discharge of sewage into the Thames, and therefore into this creek, and that the creation of a nuisance was expressly prohibited. In the Court below it was stated that the decision in this case would necessitate a reconstruction of the whole sewage system, involving an expenditure of some sixty million pounds, but it is satisfactory to find that the Court of Appeal considered this apprehension unfounded on the evidence, and that the difficulty can be overcome at moderate expense and without interference with the general drainage system. This view, of course, has nothing to do with the law administered, but in the interests of the ratepayers it is to be hoped it may prove correct.

SEWERS AND TRADE EFFLUENT.

It is satisfactory to note that the case of Brook *v.* Meltham Urban District Council (noted the *Builder*, July 11) has been carried to the Court of Appeal, and that judgment has now been delivered placing the matter on the footing we indicated in our Note as being only equitable. The question was whether the plaintiffs were entitled to pass the refuse from their works down the sewers under the provisions of the Rivers Pollution Act, 1876. It was proved that the sewers themselves were of sufficient capacity to enable this to be done, but not the purification works, but the divisional Court felt constrained to hold that sect. 7 of the Act applied only to the actual sewers and did not embrace the other works. The Court of Appeal has now held that the proviso to sect. 7: "Provided also that no sanitary authority shall be required to give such facilities when the sewers of such authority are only sufficient for the requirements of their district . . . . " includes the whole sewage system. The opposite finding would, as we pointed out, have placed a very severe burden on the shoulders of the ratepayers.

THE HOUSING AND TOWN PLANNING BILL.

THE further consideration of clause 11 was proceeded with at the last meeting of the Committtee prior to the recess on Thursday of last week.

Replying to Mr. Morrell, Mr. Burns said he would regard the appointments of Commissioners as a default authority as being to a great extent destructive both of the principle and objects of the Bill.

On subsection 3 of the clause, which provides that if in the case of non-compliance with an order made on the council of a county district, the Local Government Board, may, if they think fit, instead of enforcing the order against the council, make an order directing the county council to carry out the work, Mr. Ryland Adkins moved an amendment to provide that the power should only be exercised with the consent of the county council. He appealed to the President of the Local Government Board not to force this duty upon unwilling county councils, but to work in harmony with them.

Mr. Burns said that county councils need not be under any fear that the Local Government Board would use their power harshly, and he really did not think the amendment was necessary. He sympathised with its spirit, however, and for that reason was willing to accept it.

Sir J. Dickson Poynder remarked that he thought the county councils were quite reasonable in asking that their consent should be obtained before they were compelled to undertake work which the council of an urban or rural district refused to do.

Mr. Rogers, in supporting the amendment, said the more he discussed this question the more he was convinced that the real solution of the whole matter was to give the county council proper supervising authority over rural districts and small urban districts.

Mr. Morrell said he thought it was desirable to give the Local Government Board full discretion against whatever body it thought best, in order to get cottages built.

The amendment was carried.

Mr. Burns had the following amendment on the paper—to add the following subsections at the end of the clause:—

"(5) Where the council of a county are of opinion that for any reason it is expedient that the council should exercise as respects any rural district in the county any of the powers of a local authority under Part III. of the principal Act, the council, after giving notice to the council of the district of their intention to do so, may apply to the Local Government Board for an order conferring such powers on them.

(6) Upon such an application being made the Board may make an order conferring on the county council as respects the rural district the powers of a local authority under Part III. of the principal Act, and thereupon the provisions of the Housing Acts (including those enabling the Public Works Loan Commissioners to lend and fixing the terms for which money may be lent and borrowed) shall apply as if the council were a local authority under Part III. of the principal Act.

Provided that the expenses incurred by the county council under any such order shall be defrayed as expenses for general county purposes.

(7) Where under any such order the county council have executed any works in a rural district they may transfer the works to the council of that district on such terms and subject to such conditions as may be agreed between them.

Sir F. Channing, the Chairman, said he had given the amendment most careful consideration, and had come to the conclusion that, as it raised a very important point and one which was quite new, he must rule it out of order. It could, however, be taken as a new clause at the end of the Bill.

Mr. Burns said he regretted the decision of the Chairman, but, of course, he must respectfully accept it. Under the circumstances he would suggest that the Committee did not discuss clause 13 until after the recess. That clause defined the duty of the local authority as to the closing of houses considered unfit for human habitation, and his proposed amendment would greatly influence the Committee on any decision they might come to on that clause.

The suggestion of the right hon. gentleman postponing the consideration of clause 13 until the next meeting of the Committee was accepted.

Mr. Guinness proposed an amendment to the effect that clause 11 should not apply to the London County Council or the county of London. He said that in London a very large sum had been spent and a great deal of trouble taken by the various authorities to make housing as self-supporting as possible. The London County Council, apart from the 30,000 people who had been rehoused in connexion with public improvements and the clearances of insanitary areas, had housed 13,000 on sites under Part III. of the Act, and they proposed to go on housing. They desired to have a free hand in the matter, and they thought it was very undesirable that they should perhaps be compelled to build houses on an uneconomical basis just to satisfy the requirements of four householders who wished to have part of their rents paid out of the rates. The London County Council quite sympathised with the object of the clause in so far as it affected rural and small district areas, but they thought that London might well be exempted from its provisions.

Mr. Burns said that however desirable it might be that the London County Council should have a free hand in this matter, he really could not give it as asked for in the amendment. He could not differentiate in the Bill between London and the provinces. All the safeguards that the hon. member sought to secure for the London County Council by the Bill not being applied to London could be, and were, secured by administrative and departmental action.

The amendment was by leave withdrawn, and the clause as amended was agreed to.

Clause 12 was passed without discussion, and the Committee adjourned till Tuesday, October 13.

SECONDARY SCHOOL, HEBDEN BRIDGE, HALIFAX.—The foundation-stone has just been laid at Hebden Bridge of a new secondary school. The school is to be dual, and the total estimated cost is 10,950*l*. It will accommodate 150. Messrs. Sutcliffe & Sutcliffe are the architects, and Mr. T. Wild the contractors.

THE BUILDER

AUGUST 8, 1908.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor whether they have been formally asked for or not.

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PROPOSED NEW BUILDINGS IN LONDON AND SUBURBS.

Workmen's club, Kingston-on-Thames, Mr. G. Smith, architect; Mr. Frank Hawkey, builder, 81, Brighton-road, Surbiton.

Social institute, New Southgate. Messrs. Mackintosh & Newman, architects, Birkbeck Bank-chambers, W.C.; Mr. R. T. Burnell, builder.

Southgate.—One hundred and seven houses, Mr. W. A. Goring, builder, 308, St. Paul's-road, N.; eight houses, Tewkesbury-terrace, Bounds Green, Mr. J. Wright; eight houses, Winchmore Hill, Mr. E. A. Lewis; thirty-three houses, Lytton-avenue, Winchmore Hill, Mr. D. J. Standen; five houses, Conway-road, the New London and County Building and Estates Company, Ltd.; thirty-seven houses, Ollerton-road, Bounds Green, Mr. W. J. Keene, jun.; alterations, etc., institute, Winchmore Hill, Mr. W. J. Paulin; sixteen houses, Bowes Park and Palmer's Green, Mr. G. Scott; six houses, Conway-road, Mr. W. J. Edwards; ten houses, Winchmore Hill, Messrs. Edmondsons, Ltd., 9, Broadway, Winchmore Hill; two new streets, Messrs. R. Metherell & Son, builders, Old Park Grange, Winchmore Hill, N.

Isleworth.—Additions to The Angel public-house, Mr. W. H. Pearce, builder, 53, Gardener's-lane, Putney; pair of villas, St. Mary's-crescent, Spring-grove, Mr. C. Harding; pair of villas, St. Mary's Crescent, Spring-grove, Mr. Henry R. Roads.

Hounslow.—Bakehouse, 108, Wellington-road, Mr. D. L. Gooch; shop, Staines-road, Mr. E. Neal.

Carshalton.—Two houses, Mr. A. B. Cook, builder, Cranley House, Wallington, Surrey; two houses, Salisbury-road, Mr. F. W. Flatman.

Uxbridge. — Alterations, etc., Council-chamber, Mr. W. L. Eves, architect, 54, High-street, Uxbridge; rebuilding portion Teading Hospital for Joint Hospital Board; two houses, Walford-road, Mr. H. Borton.

Croydon.—Seventeen houses, Everton-road, Mr. D. L. Gooch, surveyor, 54, Gresham-street, E.C.; eighteen houses, Semley-road, Mr. Stanley Peach, architect, 28, Victoria-street, S.W.; sixty-three houses in Bavant-road, Newland-road, and Bulkeley-road, for London County Council; two houses, Stretton-road, Messrs. Hooker & Webb, surveyors, 4, High-street, Croydon; four houses, Guildford-road, Mr. G. Everitt, builder, 79, Windmill-road, Croydon; five houses, Howbrey-road and Cranbrook-road, Mr. G. Paul, builder, 10, Westbrook-villas, Thornton Heath, Croydon; ten houses and shops, Lower Addiscombe-road, Messrs. Pepler & Allen, architects, 3, George-street, Croydon; eight houses, Aurelia-road, Mr. H. Bacon, builder, 120, Beraham-lane, Thornton Heath, Croydon.

Ilford.—Store, Newbury-gardens, Mr. E. T. Dunn, architect, 7, Roding-street, Ilford; five houses, High-road, Messrs. E. M. Thomas & Co., surveyors, 52, Queen Victoria-street, E.C.; residence, corner of Oakwood-gardens, Green-lane, Mr. C. Ferrier, for Mr. Sidney J. Cullum.

Wealdstone. — Seventeen villas, Chandos-road, Headstone Estate, Mr. F. Whitbourne; three houses and one shop, Stuart-road, Mr. W. Wilby; twelve houses, Bolton-road, Mr. R. Browse; two houses, Radnor-road, Messrs. F. & W. Battesworth, builders, 15 and 16, Hindes-road, Harrow.

Beckenham.—Alterations to "Springfield," Westmoreland-road, Mr. E. Dodd; four shops and houses, Croydon-road, Mr. J. Farrer, architect, 2, Coleman-street, E.C.

Rebuilding of Mason's Hill School, Bromley, by the Managers.

Reinstating premises, *Illustrated London News*, Milford-lane, W.C., after fire.

New offices in Regent's Park, N.W., for Zoological Society.

Additions and alterations, Paddington Workhouse, W. Mr. F. J. Smith, architect, Parliament-mansions, Victoria-street, S.W.

Illustrations.

THE CIRCULAR COURT, NEW GOVERNMENT OFFICES.

We give an illustration this week of the Circular Court which forms the finest architectural feature in Mr. Brydon's design.

It was carried out under the superintendence of the Office of Works, but is practically unaltered from the architect's original design.

The illustration is from a photograph taken specially for the *Builder*, by permission of the Office of Works.

STUDY FOR A MODERN CHURCH.

This study, by Mr. Hubert C. Corlette, was submitted as an alternative idea for the new church at Epsom now being built from the accepted design. In the scheme illustrated it was proposed to have a wide nave and passage aisles. The nave is a series of squares covered by domes internally. The supports were concentrated as the plan shows, with wide arches distributing the weight on to these.

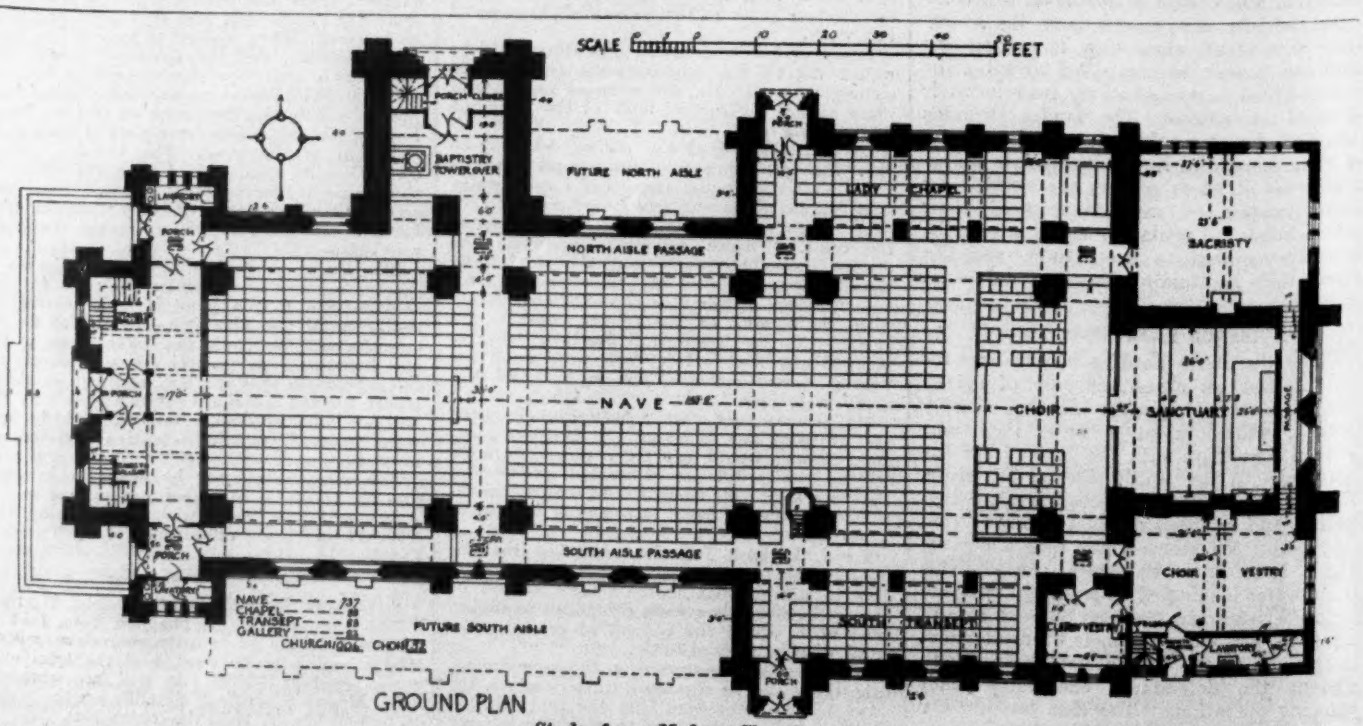
The arches and the domes are all semi-circular, the corner of the domes is above that of the arches, as they are struck on the diagonal of the bays. Breeze steel-concrete formed on rods and expanded metal was intended as the material of the domes, and wide soffits of the main arches. The western part of the rather long nave was raised one foot above the eastern portion.

The exterior was to be built in Kentish rag, or a local rubble stone relieved with some flint and stone squares and brick on tiles built in to get an additional note of structural colour. The dressings were to be of Doulting stone.

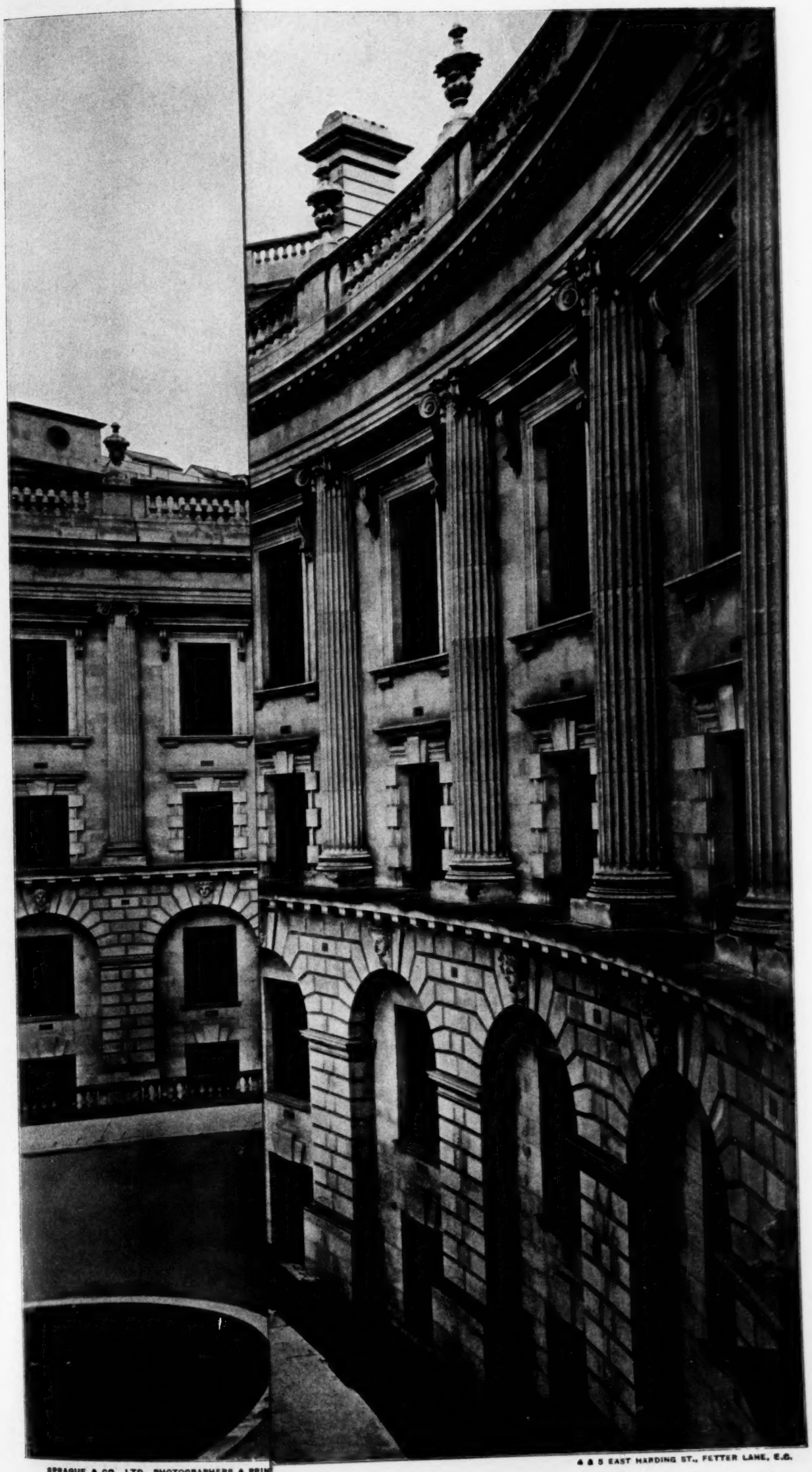
DRAWINGS FOR BALUSTRADE TERMINALS.

We give a selection of the designs which have been sent in answer to our request for a new design for a terminal feature to a balustrade pier, in place of the usual vase.

We cannot say that any of the designs sent in have come up to the standard of which we hoped to obtain. However, we have awarded the first place to No. 12 for a rather graceful and original idea; and as the design has not come out very well on the reduced scale on the plate (the details of the bronze portions having failed to come out properly), we give reproduction of the upper portion



Study for a Modern Church.



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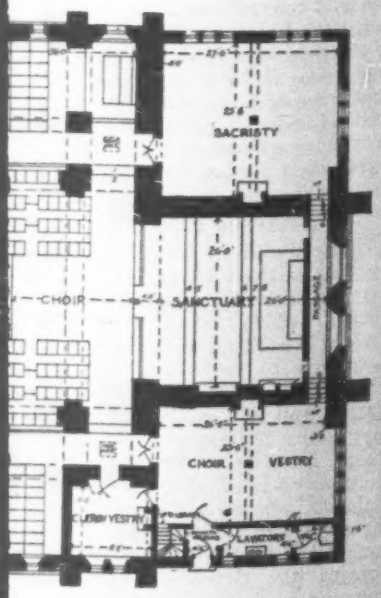

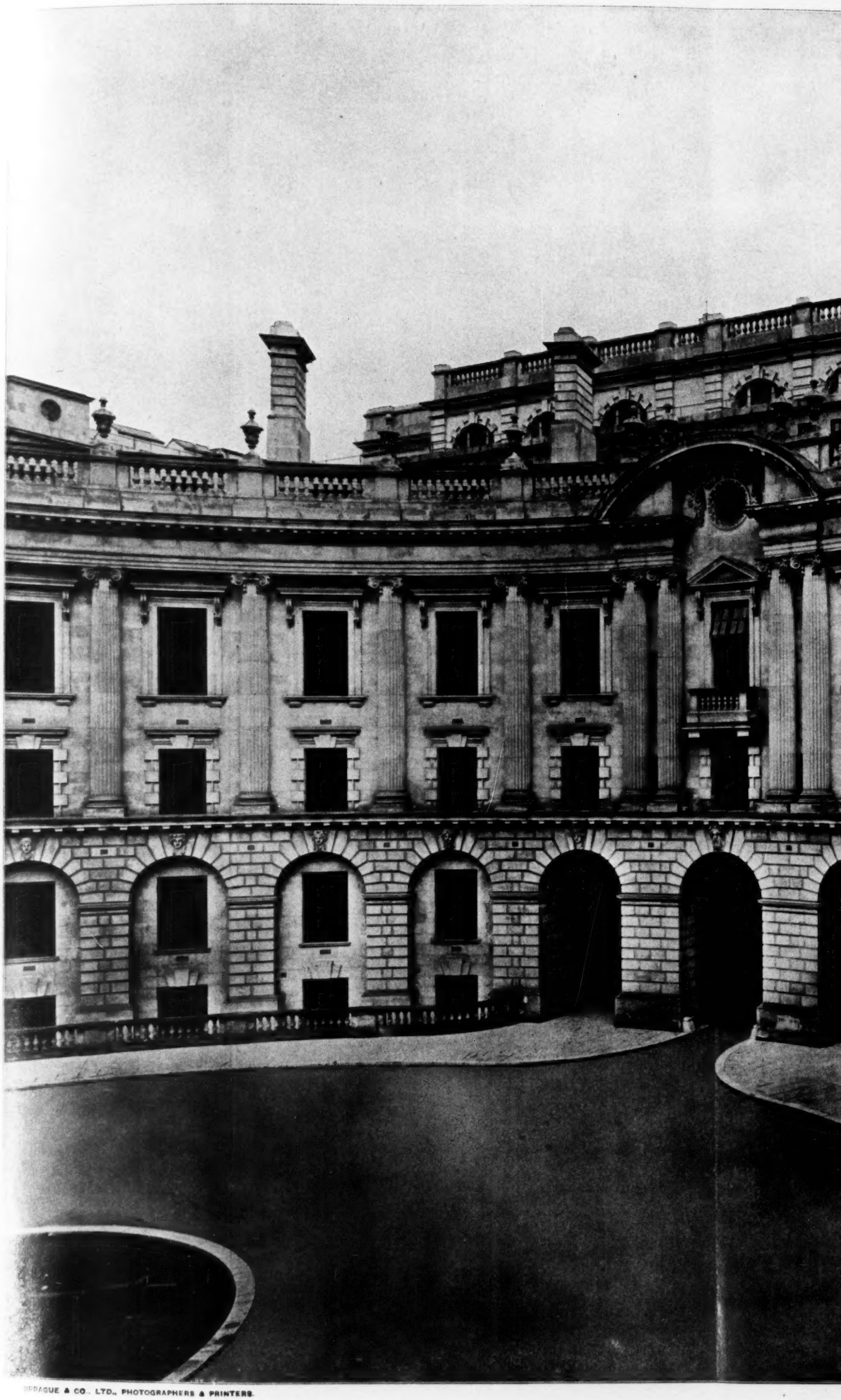

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THE CIRCULAR COURT, GOVERNMENT

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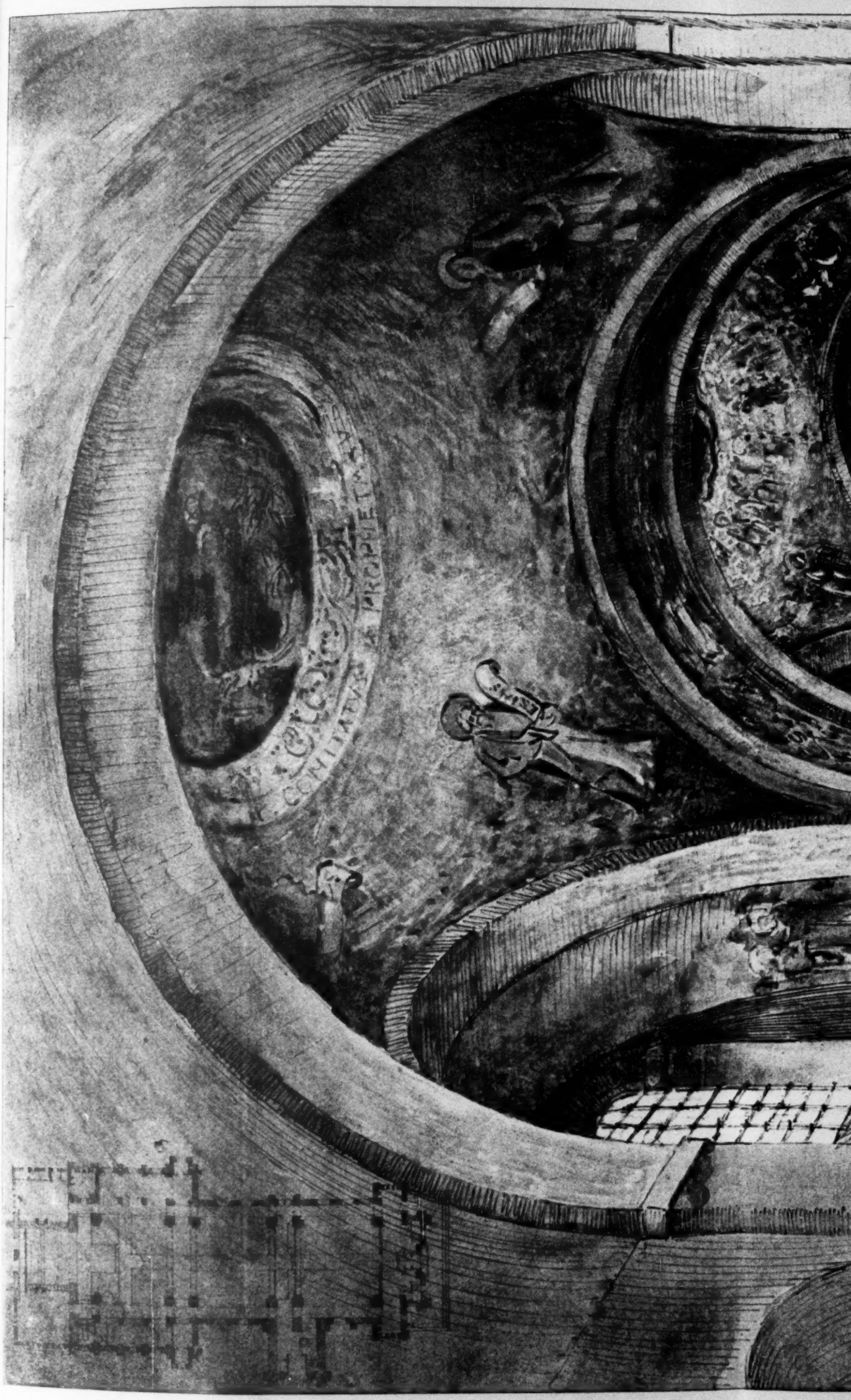
OURT, GOVERNMENT OFFICES.—The late J. M. Brydon, Architect



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A STUDY FOR A MODERN CHURCH.—By Mr. Hubert C. Corlette, F.R.I.B.A

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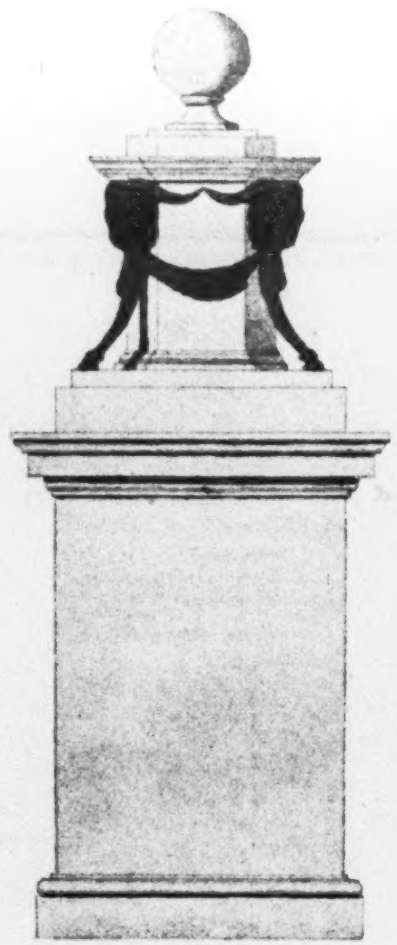

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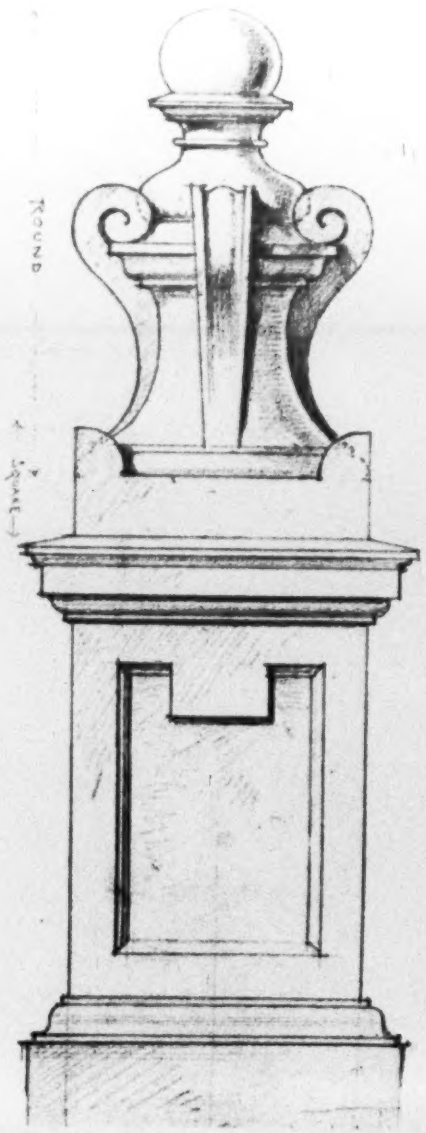

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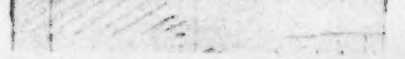

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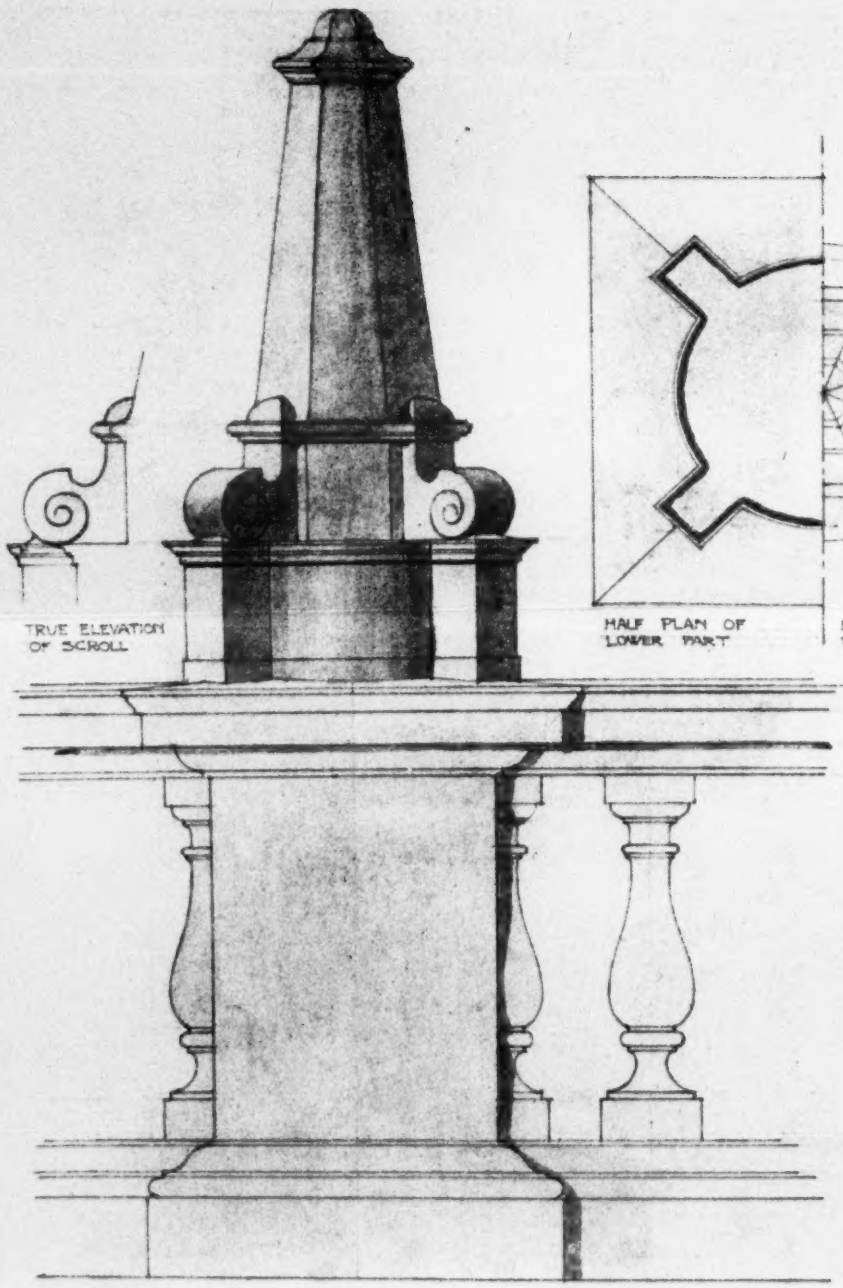

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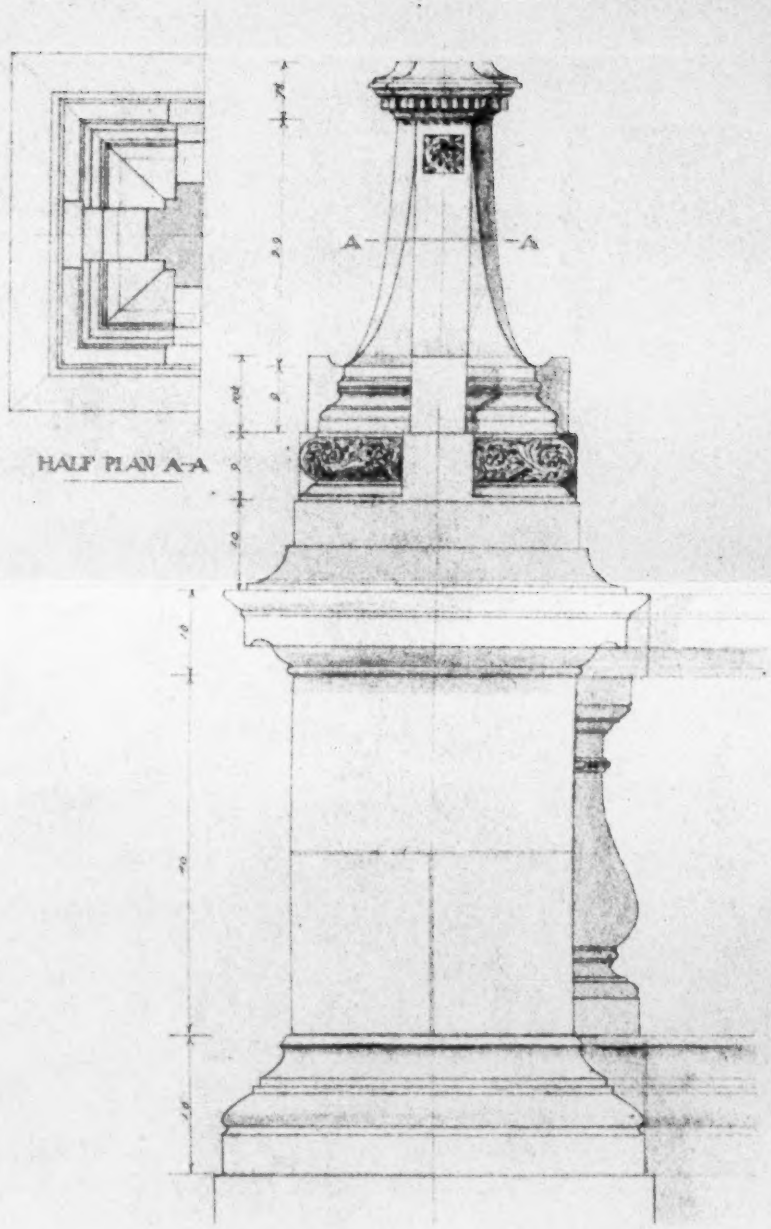

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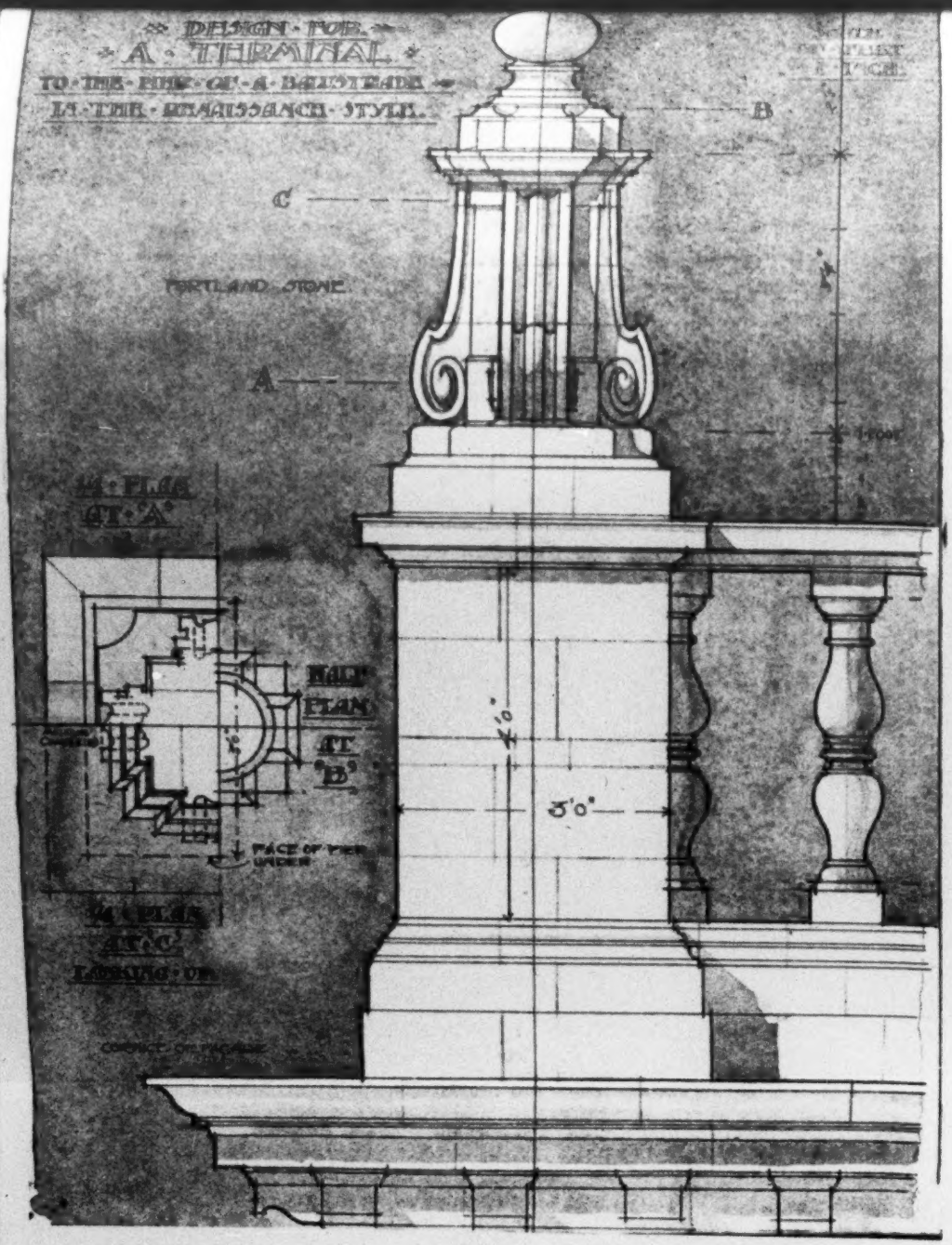
INK PHOTO SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

DESIGNS FOR BALUSTRADE TERMINALS.—I.



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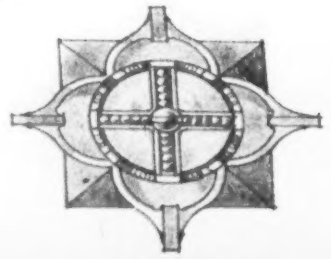
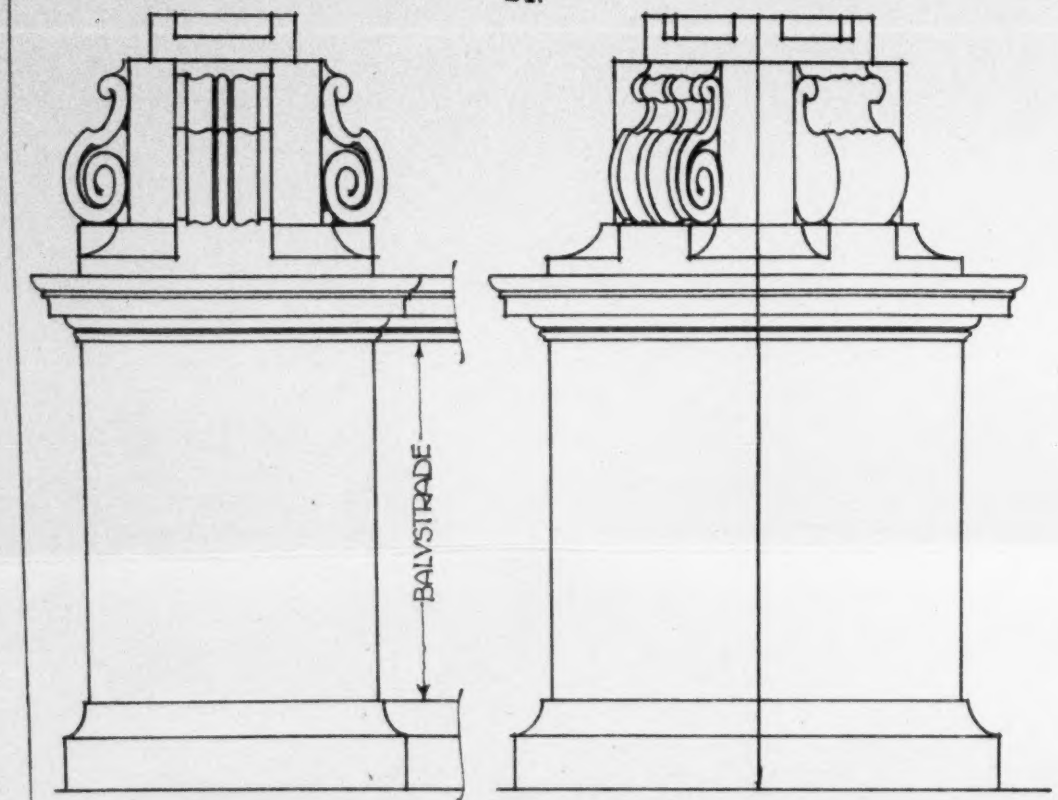


PLAN.

DESIGN FOR: A DECORATIVE TERMINAL.

24.



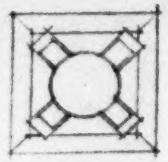
ELEVATION

DIAGONAL VIEW

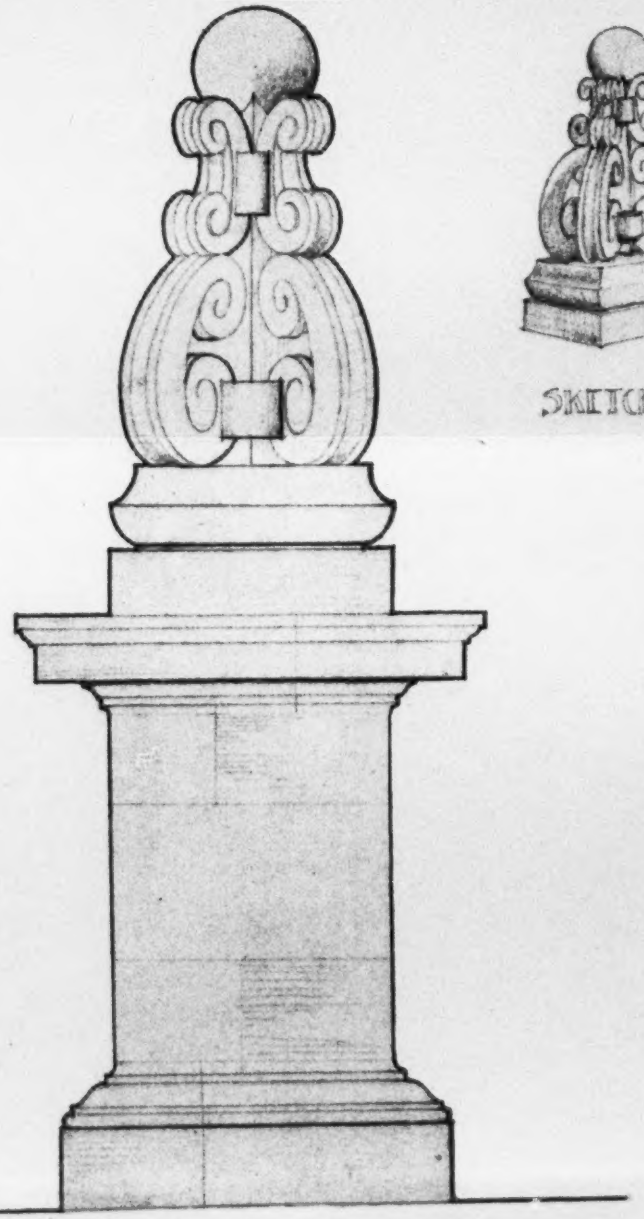
A·DECORATIVE·TERMINAL·TO·A·BALUSTRADE·PIER

4 (SECOND PRIZE). PLAN

18.



PLAN



SKETCH

13.

"INK-PHOTO" SPRAGUE & Cº LTº 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

DESIGNS FOR BALUSTRADE TERMINALS.—II.

the size of the original drawing, to do more justice to the author.

The drawings on the plate have been reduced to exactly half the size of the orignals, so that they are all on a scale of half an inch to the foot.

The second prize we found it rather difficult to decide. The object aimed at in such a feature should be simplicity accompanied by a good outline. On the whole we considered that No. 4 was the best in this respect; it is one of the least ambitious, but it is in perfectly good taste and is a termination quite suitable for the position.

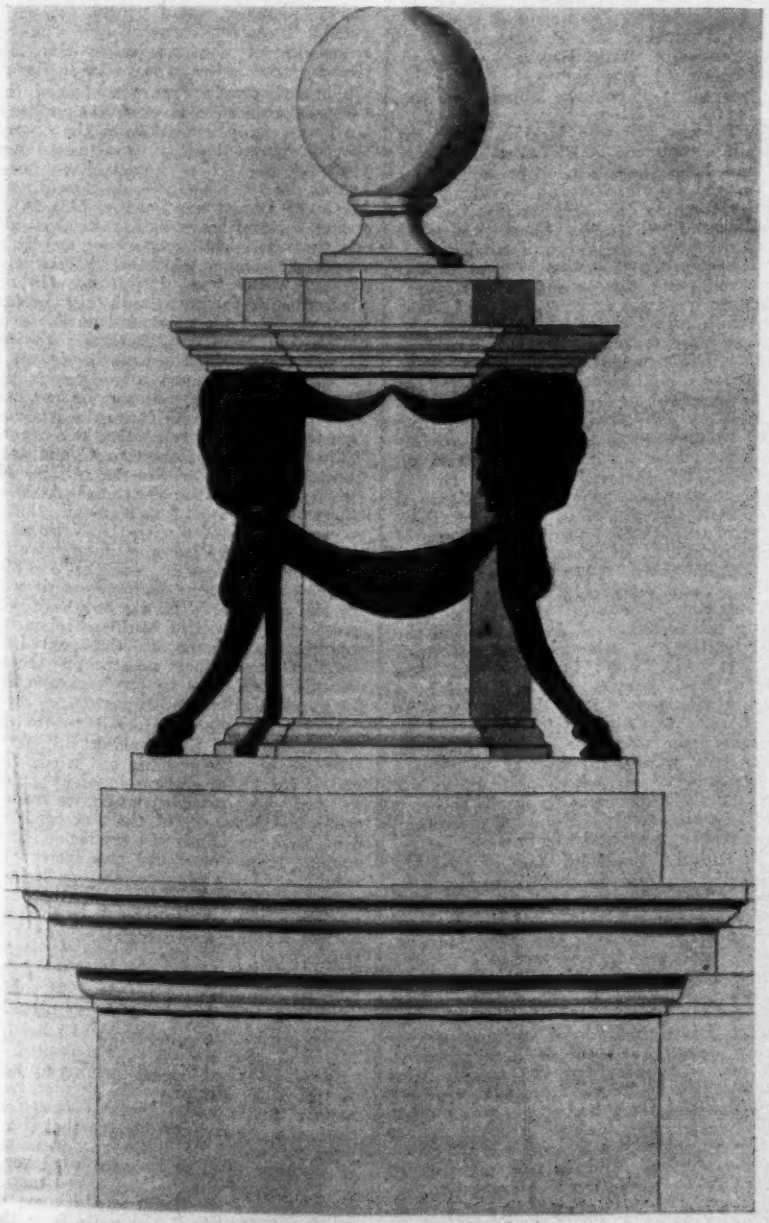
Of the others, No. 1 has a good idea of the kind of thing required, but it is rather too large in scale for the pilaster. No. 15 is a pretty drawing, but hardly simple enough nor quite sufficiently classic in feeling; moreover, we think the author will recognise that the mouldings at the base of his terminal are not in scale with those of the pilaster. No. 18 would be a clever terminal for a building with a special purpose, such as a Government Naval office (in consideration of the crown and the ship's prows), but for that reason it is not of universal application. No. 13 is not a bad idea, but not sufficiently well put together, and the base moulding is a bad one.

Some others not without merit, which are not published, failed through being too elaborate in detail.

The foregoing comments were written before opening the envelopes. On opening these it was found that No. 12 is by Mr. J. Goldie, 31, Upper Phillimore-place, W., and No. 4 by Mr. Percy May, 245, Barry-road, Dulwich, S.E. Cheques for 5 and 2 guineas respectively have, therefore, been sent to the authors of those two designs.

The authors of the others which are published are as follows:—

No. 1.—Mr. G. Stephens, Ealing.
No. 7.—Mr. Lawrance Barraud, Sidcup.
No. 13.—Mr. Stanley R. Miller, Willesden Green.
No. 15.—Mr. Duncan W. Clark, Halstead.
No. 18.—Mr. T. Alfred Williams, Chester.
No. 24.—Mr. A. G. Blackford, London.
No. 27.—Mr. C. W. Pike, Merton.



Upper Portion of No. 12: Inch Scale.

Competitions.

EMERGENCY HOSPITAL, ILFORD.—The first premiated design in this competition is by Messrs. Armstrong & Wright, Newcastle-on-Tyne; the second by Messrs. Ewen Harper & Brother, Birmingham; and the third by Messrs. Chatterton & Couch, Westminster.

INSTITUTIONAL CHURCH, EDINBURGH. — A design has been accepted for the Institutional Church to be erected on the site of the present Charlotte Baptist Chapel, Edinburgh. The authors of the successful design—which shows accommodation for about 1,000 persons in the main auditorium, 500 in a lower hall, 250 in an upper hall, and various retiring and committee rooms—are Mr. James A. Arnott and Mr. J. Morrison, of Edinburgh.

ST. GEORGE'S CHURCH, BOLTON.—Messrs. Austin & Paley, of Lancaster, the assessors in the competition for schemes for the restoration of this church, have awarded the first premium to Mr. J. L. Simpson, of Bolton and Liverpool, and the second to Mr. Frank Freeman, Bolton. Mr. Simpson has been appointed as architect for the work. The cost of the structural alterations proposed is estimated at just under 5,000*l.*, but this does not include the cost of reseating, furnishing, and decoration, which will probably involve a further outlay of 2,000*l.*

PROPOSED NEW SCHOOLS IN THE KING'S NORTON DISTRICT.—Nine sets of plans were received by the King's Norton and Northfield Urban District Council for the proposed new infants' school at the Cotteridge. The assessor placed first the plans submitted by Mr. J. P. Osborne, of Birmingham. The Council have accepted these plans, and decided to appoint Mr. Osborne as architect for the proposed school. The plans of Messrs. Ewen Harper & Brother, of Birmingham, for new schools at Grove-road, King's Heath, having been placed first by the assessor, were also accepted, and Messrs. Harper were appointed architects of those schools. The Council have appointed Mr. J. L. Ball, of Birmingham, to act as assessor of the competitive designs for the proposed new infants' school at Stirchley-street, and Mr. A. N. Bromley, of Nottingham, of the plans received for the proposed Pershore-road Schools.

NEW SCHOOLS, APPLEBY AND TEBAY.—The report of the assessor (Mr. J. Vickers Edwards, of Wakefield) upon the various plans sent in for erection of a new school for Appleby and a new infants' school at Tebay, has just been considered by the Westmoreland County Education Committee. It was decided that Mr. James Hartley, of Skipton, be appointed to carry out the work at Appleby, and Mr. Malcolm G. Shaw, Kendal, gained the premium of 10*l.*, being placed second out of thirty-four designs. The County Council will have to confirm these minutes before the money is voted, but the work at Appleby is to be proceeded with at once in the way of tenders being obtained. The Appleby school is to be a mixed elementary one for 250 scholars, but is designed so as to be enlarged to 400. Rooms for cookery, laundry work, and manual instruction are to be provided. The Tebay school is for seventy-five infants only. Messrs. Sproat, Farmer, & Warwick, of Liverpool, were placed first with their scheme F, their estimate being 748*l.* Mr. Shepherd, of Nuneaton ("Education"), was placed second (5*l.* premium).

PROPOSED IMPROVEMENT OF MARKET GATE, WARRINGTON.—The Street Improvement and Lighting Committee of the Warrington Corporation have, acting on a report of their assessor, Professor C. H. Reilly, of London, and Roscoe Professor of Architecture of the University of Liverpool, made their awards in regard to the schemes submitted to them for the widening of Market Gate. The first premium of 50*l.* goes to Messrs. Wright, Garnett, & Wright, the second to Messrs. W. & Segar Owen. The third design (submitted by Messrs. Wright, Garnett, & Wright) was considered of such merit as to warrant the committee in awarding them 10 guineas. The design of Mr. Beesley was placed fourth. Altogether twelve designs, all local, were sent in.

NEW NORTHENDEN SCHOOLS, SALE.—At the last meeting of the Sale District Education Sub-Committee it was reported that the County Plans Buildings Sub-Committee had decided to accept the set of plans No. 6 in connexion with the proposed new Council schools at Northenden, subject to three central classrooms being made a foot wider and to a slight alteration of the position of the building. It was found when the sealed envelope was opened that the successful plans were those of Messrs. Magnall & Littlewood, of Spring-gardens, Manchester.

Trade Catalogues.

MESSRS. KYNOCH, of Birmingham, send us their new catalogue of gas-engine and suction-gas producing plant. With the exception of the four smallest sizes, from 5¼ to 27 brake-horse-power, all the gas-engines made by this firm are of the "electric lighting" type, having an extended base providing support outside the flywheel for each end of the crank-shaft, and thus obviating the tendency to unequal wear found in engines with overhanging flywheels. The larger engines, from 200 to 400 brake-horse-power, are of the tandem type, which is recommended for the saving of ground space and foundations, as also for freedom from the risk of breakdown such as is inseparable from single-cylinder engines of high power. The catalogue contains excellent drawings and photographic views of the engines described, and a clear statement of the structural features characterising Kynoch gas-engines from 80 horse-power and upwards.

The Kynoch suction-gas plant is of simple and substantial construction designed to work with anthracite coal, coke, or charcoal. On first starting the apparatus draught is induced by a hand-power fan, then as soon as gas has

been produced in sufficient quantity the engine can be set in motion and the operation of the plant becomes automatic, air being drawn into the vapouriser and gas from the coke scrubber, or purifier, by the suction of the piston.

We have received from M. Ch. Juliot, publisher, at Dourdan (Seine-et-Oise), France, notices of a large number of apparently valuable works on various branches of practical work and construction, published by his house. These include a theoretical and practical treatise on Masonry; another on Stereotomy, by M. Louis Mondint, architect; a treatise on Carpentry, by M. L. M. Mazerolle, which from the examples of illustrations given, appears to be exceedingly well illustrated; a work on "Architecture Nouvelle" under the direction of a committee of architects and contractors, etc. The firm publish other works on Ebony work, Tapestry and "Fenêtres, Lits, Bases et Portières dans le Decoration Moderne," by E. Poussier; but this latter, from the specimen illustrations, is likely to appeal rather to French than to English taste.

BOOKS RECEIVED.

PUBLIC ABATTOIRS: THEIR PLANNING, DESIGN, AND EQUIPMENT. By R. Stephen Ayling, F.R.I.B.A. (London: E. & F. N. Spon, Ltd. 8s. 6d. net.)

BY-LAWS AS TO HOUSE DRAINAGE AND SANITARY FITTINGS MADE BY THE LONDON COUNTY COUNCIL. Annotated by Gerard J. G. Jensen, C.E. Second edition. (London: The Sanitary Publishing Company, Ltd. 3s. 6d. net.)

MINEHEAD, PORLOCK, AND DUNSTER. Fourth edition. (The Homeland Handbooks. 6d. net. Minehead: Cox, Sons, & Co., Ltd.; London: The Homelands Association, Ltd., 15, Bedford-street, W.C.)

Correspondence.

THE NEXT PARIS EXHIBITION.

SIR,—I have considered the "Note" under this head appearing in your issue of the 1st inst., and can quite agree with your objection to the prolonged delay which occurred in the demolition of the Paris Exhibition of 1900, but in turn I hope you will agree that this temporary inconvenience to the city is more than balanced by her gain of the permanent erections.

The acceleration of things in general during recent times, however, does not appear to me to indicate the occasion to lengthen the intervals between the Paris Exhibitions. A good deal of development has taken place in the last ten years, and no doubt considerably more will occur in the next.

May I point out a misprint in the "Note"? You refer to the Paris Exhibitions of 1899 and 1900. They were held in 1878, 1889, and 1900, the intervals being each a decade and the eleventh years occupied by the exhibitions.

NIXON HORSFIELD.

NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS.

THE general meeting of the members of the National Federation of Building Trades Employers of Great Britain and Ireland was held on July 29, in the Council House, Birmingham, under the chairmanship of the President, Mr. C. H. Barnsley, of Birmingham.

The members were met in the Council-chamber by the Lord Mayor, who gave them a hearty welcome and wished success to their deliberations. His lordship said he had read their report with very much interest, and conceived it was the duty of every master builder to join the Federation. The many subjects dealt with showed it was imperative for the good of the trade that they should be strong. Confronted, no doubt, as they were from time to time, and as they would be in future, by organisations of a political, industrial, social, and Socialistic character, they must be strong to assert their rights. Actuated as he had no doubt they always had been, and would be, by absolute justice and a desire to be fair as between man and man, yet it was essential they should be strong. A weak man in a crowd was not heard. He cordially commended their Federation to the serious attention of all associations, and he wished their deliberations every success.

The President expressed the thanks of all for the kind words the Lord Mayor had addressed to them. They were deeply sensible of the honour he had conferred on them in finding time, amidst his many duties, to come to the opening of their proceedings. They thanked him also for courtesy and consideration in granting them the use of the Council-chamber for their deliberations. As a Birmingham man he wished to say how much he appreciated the honour the Federation had done him by electing him President, and he was glad that, after an interval of many years, they were once more holding their meetings in Birmingham.

The President then announced that they had with them three gentlemen representing distant parts of the world.—Mr. P. Clark, President of the Johannesburg Master Builders' Association; Mr. J. M. Pringle, Treasurer of the Federation of Builders of New South Wales; and Mr. A. E. Parfitt, of Bloemfontein, and formerly a member of the Newport (Mon.) Association. He extended to those gentlemen a most cordial welcome, and invited them to address the Federation.

Mr. Clark said he had been very much impressed with Birmingham, and he agreed with the President that all was not "Brummagem" which came out of Birmingham. He wished her people and their industries every success. Referring to the position of the building trade in South Africa, he said they had, as in the home country, their difficulties. Just previous to and after the war the architect laid down his own conditions. He had his own way of taking quantities, which was most unsatisfactory to the building trade. The trade put their heads together, with the result they now had not only local associations, but colony federations, as well as a national federation. This had resulted in an improved status. They had had several conferences with the architects, and had found they were really good fellows after all.

Mr. Pringle said he had been away from the old country for twenty-five years, and during his present visit he had been greatly struck by the great improvement that had taken place as to the streets, and particularly the pavements of the small towns in both England and Scotland. It also struck him there had been much improvement so far as building construction was concerned. They had evidently not been standing still in the last quarter of a century. The death-rate was lower than it used to be, and the credit for such a state of affairs must be in a large measure due to the architects and builders. Dealing with the state of affairs in Australia, Mr. Pringle said they had passed through troublous times owing to the interference of one political party—the Labour party—but they were hopeful of the future.

Mr. Parfitt, who followed said in 1903 there was no trade association in Bloemfontein. Before he had been there nine months he had worked up the builders to appreciating the necessity for forming one, and one was formed. He corroborated what Mr. Clark had said about architects and the taking of quantities.

The half-yearly report having been presented and approved, with the exception of a paragraph dealing with the action taken by Dublin in regard to a national form of contract, Mr. MacFarlane (Manchester) moved:—"The conditions of contract issued by the Royal Institute of British Architects, and approved of by this Federation, having now been in continuous use since July, 1903, during which time they have been found to give general satisfaction, the Council be and are hereby instructed to approach the Royal Institute of British Architects, in co-operation with the Institute of Builders, with the object of obtaining their support in a united effort to extend the use of those conditions to districts that have not already adopted them." Mr. MacFarlane said it was important there should be a uniform form of contract. For many years they negotiated with the Institute of Architects and the Builders' Institute in order to frame a form of contract. It was now in existence, was accepted by both parties, and was used by a great many architects. Still there were some people whom it was difficult to lift out of the old rut and place upon the path of progress, and what they wanted to do was to get the Royal Institute of British Architects to use pressure on their members to adopt the new form of contract.—Mr. Hope (Sunderland) seconded, and the proposal was passed.

Mr. J. Biggin (Sheffield) moved that the Administrative Committee should approach the Government Departments and local authorities in order to obtain recognition of the national form of contract, and that the county federations and local associations should be urged to follow up any action the national might take.—Mr. W. R. Thompson (Dewsbury) seconded, and said forms of contract entered into under local authorities were often very onerous, as many of them contained clauses very derogatory to the trade. Most had been drawn up by solicitors who were not in sympathy with their body. He was glad to note the matter was recently brought before Local Government officials, who saw no objection to the proposal, and, in fact, commended it highly.—The proposition was agreed to.

Mr. J. Wright (Notingham), in order to extend the form of contract as widely as possible, proposed the Administrative Committee should approach all the architects' institutes on the subject.—Mr. J. Bowen (Birmingham) suggested that clerks to county and city and other authorities should be communicated with. He pointed out that there were instances of town clerks who had their own ideas as to the form of contract, and were of opinion that no form but theirs should be adopted. He was alarmed the other day to hear that in Birmingham a contract which did not include the arbitration clause was signed.—These suggestions were agreed to, and the motion was carried.

Mr. Hope called attention to a letter received from the Right Hon. the Earl of Wemyss requesting that the following resolution, proposed to be moved in the House of Lords, should be considered by the Federation:—"That central societies for the advancement of trade, commerce, industry, law, science, and art be invited to name three peers each who may be willing to represent their interests and speak and act in their name, and that the names of such peers be entered in the journals of the House. Further, that the selection of the societies to whom this privilege is to be accorded be left to the Lord Chancellor and Lord Halsbury, and to Lords Crewe and Lansdowne, the respective leaders of the Government and Opposition."—Mr. Hope pointed out they were one of the few trade organisations who had no particular member in Parliament who could voice their views. He knew another association, which was not a trade union, who had made an arrangement by which they could call upon a certain member to voice their views when anything affecting their interests came before the House of Commons. They had one member on the Government side, one on the Opposition, and one amongst the Labour party. According to the proposed resolution, there should be peers ready to place themselves at the disposal of the National Federation to voice their views in any legislation which might be initiated in the Upper House, or come up to them from the Lower House. Communication from their President or Secretary would be sympathetically received and their views intelligently brought forward. He moved they approved of the resolution.—Mr. Davidson (Leeds) seconded, and the motion was adopted.

The half-yearly report contained the statement in reference to conciliation boards that "a good many notices from the operatives in the northern centre and elsewhere have matured, and these boards have been freely made use of. The annual meeting of the National Board was held on May 12, 1908. A special committee, which had been endeavouring to induce the outstanding trades to come into the scheme, reported the result of their efforts, which was briefly that the operative plasterers preferred to maintain the agreement between the Federation and the National Association of Operative Plasterers; the operative plumbers consider the time is not yet ripe for asking their members to reconsider this question; the operative painters do not at present view the scheme with favour."—After a discussion the following resolution was agreed to:—"That the Administrative Committee be requested to consider the desirability of mending or ending the National Association of Operative Plumbers' agreement; that they be requested to confer with the National Association of Master Plasterers thereon, and report to the annual meeting; and that one plasterers' representative from each centre sit with them for the purpose."—It was decided to defer the question of admitting builders' labourers to the conciliation scheme to the next half-yearly meeting, and that meanwhile the question should be referred to the various associations for consideration and report.

Mr. MacFarlane referred to the Building Operations and Engineering Bill now before Parliament. He pointed out it contained provision for an alteration in the regulations as to what constituted a dangerous trade; whilst the administration of the Factory Act would come into the hands of town council and county council inspectors, and the factory inspector would have the right to step in if he thought they were not administering the regulations as they ought. They must keep their eyes open to see nothing too derogatory to the building trade was introduced, and he moved the matter be left in the hands of the Administrative Committee.—Mr. W. M. Blackburn seconded, and the proposal was passed.

Mr. A. Smith (Birmingham) moved that the National Federation be requested to consider the advisability of forming an association of builders' foremen. He pointed out that a certain trade union recently passed a resolution the effect of which was that if a member were or would be in the receipt of a pension or annuity from any source whatever, or who by his own industry had saved money which would form a small source of income, he would not be eligible for an annuity from the union. It looked as though the trade unions were

beginning to devour their own children. Was it possible for them as a Federation to move in the matter and assist the foremen to form an association of their own which would be outside trade unionism?—Mr. J. Bowen seconded the motion, and it was agreed to.

A vote of thanks to the Lord Mayor for granting the use of the Council-chamber concluded the proceedings.

In the evening the officers of the Birmingham Master Builders' Association, for whom Mr. F. G. Whittall is chairman, held a reception and garden-party at the Botanical Gardens, and subsequently the guests were entertained to supper.

[The above is an abstract of a report of the proceedings which appeared in the *Birmingham Daily Post*.]

METROPOLITAN ASYLUMS BOARD.

At the fortnightly sitting of the Metropolitan Asylums Board on Saturday a letter was received from the Local Government Board sanctioning the Board entering into a contract with Messrs. C. P. Kinnell & Co. for the execution of alterations in the heating arrangements of Grove Hospital without first advertising for tenders.

Mead Ambulance-station.—Plans were submitted by the Chief Engineer for providing accommodation for motor-vehicles at the above station, estimated to cost 310*l.*, and this was agreed to.

Solomon's-passage.—It was decided to surrender to the Camberwell Borough Council a strip of land adjoining the new central stores at Peckham Rye, on condition that the Borough Council widened and made up the road.

East Hospital.—The Hospitals Committee reported upon the letter from the Local Government Board, in which it was suggested that the plans for providing additional male staff accommodation at the Eastern Hospital might be modified. The Committee had come to the conclusion that no modification was possible.

Obituary.

MR. J. SHEPPARD.—We have to announce the death, at the age of 68, of Mr. James Sheppard, who for some ten years past has been a member of the Executive of the British Fire Prevention Committee, and an active worker in all fire-preventive questions. He was actively associated with the testing operations of the Committee, having been the directing member on no fewer than forty tests in respect of which reports have been issued. For the International Fire Congress, held in London in 1903, he was hon. secretary of the meeting. He acted as chairman of the International Library, and was a member of the Special Commission on Concrete Aggregates, and an honorary member and worker in many fire service societies both at home and abroad. By profession he was an insurance surveyor acting for the North British and Mercantile Insurance Company. He held the Russian gold medal for zeal, and other foreign distinctions. As a writer he was a prolific contributor of technical papers.

General Building News.

NEW CHURCH, BOGNOR.—Work has been begun on the erection of a new church, to be dedicated to St. Wilfrid, at West Bognor. The designs have been prepared by Mr. C. H. Fellowes-Prynne, architect. Messrs. J. Jarvis & Sons are the builders.

METHODIST CHAPEL, HEAGE.—A new Primitive Methodist chapel is being erected at Heage. The new church is entered by a vestibule, and has two inner doors opening into the aisles. The building consists of nave, two transepts, and choir, with two vestries, one opening into the church by a folded screen. There are also a heating-chamber, tea-making room, and a vestry on the basement floor. The floor of the church has a gradient of one in twenty. The whole of the internal woodwork is to be of pitch-pine, varnished, and the windows will be in leaded frames glazed with cathedral glass. The front of the building is to be faced with pressed bricks, and the whole has Coxbench stone dressings. The roof will be slated, and the ridge surmounted by an ornamental ventilating flèche. The contract is let to Mr. Joseph Spendlove, of Heage, and the architect is Mr. W. G. Smithson, A.R.I.B.A., of Leeds.

ST. BARNABAS'S PAROCHIAL HALL, MITCHAM.—The foundation-stone has just been laid of the new parochial hall in connexion with the St. Barnabas's Mission. The hall will seat 550 people. The materials used are picked Crowborough facing bricks and Portland stone, and Wrotham hand-made tiles for the roofs. Mr. H. P. Burke Downing, of Little College-street, Westminster Abbey, is the architect, and the builders are Messrs. G. P. & H. Barnes, of Streatham Park, whose tender was accepted at 2,958*l.*

GRAMMAR SCHOOL, AMBLESIDE.—The opening has just taken place at Ambleside of the Kelswick Grammar School. The new building has been erected from the designs of Messrs. Walker, Carter, & Walker, architects, by Mr. A. Jackson, builder.

PAROCHIAL HALL, NOTTINGHAM. — A new parochial hall is being built in the parish of St. Mark, Nottingham. The foundation-stone was laid recently by the Mayor. The hall will seat 300 persons and can be divided into three parts for small meetings. There are two classrooms upstairs in addition. The cost is about 1,000*l.* The architects are Messrs. Heazell & Sons, of Nottingham.

THE WANTAGE HALL, READING.—The Wantage Hall, Reading, is now nearing completion, and will be finished by the middle of September. The building, which is a gift of Lady Wantage to University College, will have accommodation for about seventy-five students and some of the staff, besides a dwelling for the Principal. The rooms are all arranged in suites of five. Under the dining-hall are rooms for the students to meet in common in the evening, and there is similar accommodation for the staff. The basement is given up to the administrative department and sleeping accommodation for the men servants and domestics. The hall has been erected at a cost of about 30,000*l.* It is built of local bricks, and all the windows are of Doulton stone and fitted with leaded lights. Messrs. G. S. Lewis & Brothers, of Reading, are the builders, and the architects are Messrs. Charles Smith & Son.

REBUILDING IN HAYMARKET.—New head offices, styled Dewar House, have been erected, after plans and designs by Mr. F. M. Elgood, for Messrs. John Dewar & Sons, Ltd., distillers, at the corner of Orange-street. The entrance into the principal offices and rooms, on the ground floor, is in the angle; the main reception-hall contains separated compartments for the departmental managers, and is lined with veined green marble panels, above which are a frieze of alabaster and bronze decoration embodying barley-ears, and the rose, shamrock, and thistle; the woodwork is mainly of walnut. At the rear is the counting-house, lighted by three glass cupolas. There is a separate doorway in the main street to the staircase, of white Pentelicon marble, which gives access to the upper floors; the exterior is of Aberdeen granite. It is stated that an adjacent site, on the east side, has been secured for the building of a theatre.

NEW FIRE-STATION, SOUTHAMPTON.—The foundation-stone has just been laid of a new fire-station on a site adjoining the Education Offices in St. Mary's-road. Plans prepared by the Borough Engineer, Mr. J. A. Crowther, for the construction of a station were accepted, and the contract for the erection of the buildings was given to Messrs. Dyer & Sons, of Southampton, the contract price being 4,210*l.* The new station will provide accommodation for an engine-house, 40 ft. by 35 ft., two-stall stables and a loose box, superintendent's office, and stores. The repairing shop will be placed underneath the engine-house. Above the engine-house there will be provision for six single men, consisting of cubicles, mess-room, duty-room, kitchen, scullery, bathroom, and the usual offices. The engine-house has been placed at the rear of the site. A watch-room will be provided on the ground floor fronting St. Mary's-road, and the superintendent's quarters will be immediately behind this, consisting of a two-story building, comprising dining-room, kitchen, and offices, four bedrooms, and bathroom. On the second floor two self-contained flats are shown, which give accommodation for two married men.

ENLARGEMENT OF THE CUMBERLAND INFIRMARY.—A scheme of enlargement is being carried out at the Cumberland Infirmary. The work is to be carried out in sections, and the part at present being executed includes the kitchens and the offices connected with the kitchens, the sanitary offices, a boiler-house, a new laundry, a new carriage-shed, and the laying of the foundations of the new pavilion on the west side of the ground floor. The total expenditure will probably be about 30,000*l.* The plans have been prepared by Mr. J. J. Burnet, architect to the Western Infirmary, Glasgow.

TRAMWAY OFFICES, STOCKPORT.—New tramway offices are in course of erection in Mersey-square, Stockport. The premises have outside walls of Accrington bricks with Darley Dale stone dressings. The basement is to be used for storage, and the ground floor will consist of ticket-office with public entrance from Mersey-square, entrance-hall with staircase, timekeeper's and store rooms. The floor is to include the general office, manager's office, and spare room. The design was submitted by Mr. Geoff H. Brady, architect, Stockport, in competition, and to whom the assessor awarded first place. The work is being carried out by the contractors, Messrs. T. & W. Meadows.

ADDITIONS TO THE WORKHOUSE INFIRMARY, NEWPORT, SALOP.—New sick wards have been added to the infirmary of the Union Workhouse at Newport. The building provides for twenty-nine beds in four wards. The general contract was carried out by Messrs. Muirhead & Co., Ltd., Newport; and the hot-water apparatus was fitted by Mr. Tucker, of the same town. The sanitary fittings were supplied by Messrs. Doulton & Co., of London; the grates, ranges, and chimney-pieces, the Griffin Foundry Co., Birmingham; and the door and window furniture by Mr. James Gibbons, of Wolverhampton. The total outlay has been about 4,000*l.*, and the whole of the work has been carried out from the designs of Messrs. Fleeming & Son, architects, of Wellington and Wolverhampton.

CENTRAL HALL, ABERCARN.—The foundation-stone of the new Central Hall, Welsh Calvinistic Methodist Forward Moment, at Abercarn, was recently laid. The hall will provide accommodation for about 600 persons. The contract, amounting to 2,420*l.*, is being carried out by Mr. Charles Shapland, contractor, of Newport, from the designs and under the superintendence of the architects, Messrs. Habershon, Fawckner, & Co., Newport.

Appointments.

UNIVERSITY COLLEGE, LONDON.—The following appointments have been made in civil engineering and surveying:—A. T. Walmisley, waterways, harbours, and docks; H. Deane, B.A., railway engineering; W. N. Blair, roads, street paving, and tramways; and M. T. Ormsby, surveying. Mr. R. E. Middleton, F.S.I., has been reappointed lecturer in municipal engineering.

NEW BOROUGH SURVEYOR FOR DEPTFORD.—The General Purposes Committee of Deptford Borough Council has been authorised to take the necessary steps to fill the vacancy caused by the resignation, through ill-health, of Mr. Thomas Corfield, Borough Surveyor. Mr. Corfield has been granted a superannuation allowance of 150*l.* per annum, and will be retained as consulting engineer for twelve months, for which he will receive a fee of 200 guineas.

MACCLESFIELD.—Mr. S. C. Baggott, the second engineering assistant on the staff of the Borough Engineer of Northampton, has resigned that position on his appointment as assistant borough engineer and surveyor of Macclesfield. Mr. H. B. E. Brown, junior engineering assistant, is to succeed Mr. Baggott at Northampton.

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Messrs. Purvis & Purvis, Surveyors, have removed their offices from Deptford Bridge to No. 14, Broadway, Deptford, S.E. Their telephone number (752 Deptford) remains the same.

DULWICH LIBRARY.—The Borough Engineer of Camberwell, who has been engaged in examining the Dulwich Library in consequence of the settlement of the building, reports that along the whole length of the wall on the south side of the building there are three cracks which go down to and through the concrete, the other cracks going no further than the damp course. He thinks that if the three places are cut out and underpinned with deeper concrete, and further concrete is put under the wall at the junction of the magazine-room and the lending department, and the brickwork and inside plastering and decorations are made good, nothing further may happen, although it is impossible to make a definite statement one way or the other. The matter will be considered at the next meeting of the Council.

WOOLWICH COUNCIL AND THE BUILDING ACT.—The Medical Officer of Health for Woolwich, Dr. S. Davies, reported to the Borough Council on July 23 that cases are frequently met with in which the living-room, in recently-built houses, is insufficiently lighted and ventilated owing to its not opening directly into the open air, but into another structure commonly used as a scullery. Such a condition, he says, is very much opposed to health, both the darkness and want of complete ventilation tending to deterioration of health and an increase of consumption and infectious diseases. The London Building Act endeavoured to prevent this insanitary state of things by requiring that every habitable room should have a window opening directly into the exterior air or into a conservatory, with a total area of at least one-tenth of the floor area, and of which one-half should be made to open. Abuse of

this provision has occurred by a lax interpretation of the word "conservatory." No definition of this word is given in the Act, but what is popularly understood by the word is "greenhouse or place for keeping exotic plants." Other meanings are (1) storehouse, (2) school of music. The doctor thinks it is obvious that the Act intended it to mean a greenhouse for plants, but it has been interpreted by builders, and apparently to some extent by District Surveyors, as meaning any structure in which glass takes a large share, and, as a result, it has become common to erect a structure with one side and a roof chiefly of glass outside one of the back rooms on the ground floor, and use it for a scullery. It appears to the Medical Officer that this is a distinct breach both of the letter and of the spirit of the London Building Act, 1894. The second subsection of sect. 70, dealing with this matter, states that any person who knowingly suffers any room, constructed after the commencement of the Act, not in conformity with this section to be inhabited shall be liable to a penalty for every day during which such room is inhabited. It is not made clear, however, how this penalty is to be enforced. The authority to take proceedings is the London County Council, but the District Surveyor, who enforces the principal part of the Act, is hardly in a position to enforce this subsection. The Borough Council decided to call the attention of the London County Council to the matter, and to ask that authority to take steps to see that the Act is carried out so as to prevent serious interference with the light and ventilation of living-rooms.

BRISTOL MASTER BUILDERS.—The members of the Bristol Master Builders' Association recently held their annual excursion, when they visited Reading, Pangbourne, Goring, and Streatley. The party included Mr. Frank N. Cowlin (President), Mr. H. Dare Bryan (President Bristol Architects' Society), and Mr. A. J. Pitt (Secretary). When Reading was reached a visit was first made to the public gardens, but the main interest of the party was centred in the remains of the Abbey, through which they were conducted by Dr. J. B. Hurry. The members then had luncheon at the Queen's Hotel. Mr. F. N. Cowlin presided, and before the room was left took occasion to tender their thanks to Dr. Hurry, who had contributed so effectively to their enjoyment. Leaving the hotel the excursionists set out by special tramcar for Caversham Lock, where they embarked and proceeded up the River Thames to Pangbourne, Goring, and Streatley. At Streatley the party landed, and after remaining there for an hour the trip back to Reading was begun. Dinner was partaken of at the Queen's Hotel, Mr F. N. Cowlin in the chair. After dinner the President proposed the toast of "The Visitors." He said that they had spent a most pleasant day, and all the master builders would agree that the pleasure had been increased by the presence of so many visiting brethren. Trade had been so bad in the last year or two, and the builders were in such low spirits, that the outing would have been an attempted merry undertaking if they had no visitors. He would couple with the toast the name of Mr. Dare Bryan, who could speak of the genial feeling which existed between the architects and the builders. He would also call upon to respond to the toast Mr. J. Sherborne, of Reading, who had assisted them in making arrangements for the outing.—Mr. Dare Bryan replied, and Mr. J. Sherborne also spoke.—Mr. G. Humphreys proposed the health of the President, and Mr. Cowlin briefly acknowledged the compliment. This brought the speech-making to a termination, and the party shortly after made the return journey to Bristol.

UNEMPLOYMENT IN THE BUILDING TRADE.—Mr. Tyson Wilson inquires of the First Commissioner of Works whether, in view of the amount of unemployment in the building trade, he will put in hand all new Government buildings and alterations, additions, and repairs to existing buildings for which money has been voted by Parliament, with the object of relieving to some extent the distress now existing in this industry.—Mr. Harcourt, in the Parliamentary papers, replies to the effect that no time is being lost in putting such work in hand.

MOSAICS IN THE HOUSES OF PARLIAMENT.—Mr. Essex asks the First Commissioner of Works whether the four panels in the Strangers' Lobby, two of which are now filled with mosaics, were originally intended to be all filled in with mosaic decoration; are there any cartoons or working drawings in existence intended to provide for the two vacant panels; is it intended in the near future to complete the four; and are the patron saints of Ireland and Scotland to form the *motifs* for the remaining designs.—Mr. Harcourt replies that he thinks it most desirable that the two remaining panels should be finished in mosaic, as was always intended; but he fears that the condition of the public finances will not warrant the Government at present in spending money in works of supererogation, however decorative. He might, however, suggest that these panels are very suitable for private generosity on the part of those who are addicted to the missing saints, and he would be glad to receive any communications in this direction.

Law Reports.

APPEAL UNDER THE TRADE DISPUTES ACT, 1906.

IN the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Farwell and Kennedy, on the 30th ult., judgment was delivered in the case of Conway *v.* Wade, on the appeal of the defendant from the judgment of a Divisional Court of King's Bench dismissing the defendant's appeal from the verdict and judgment entered for the plaintiff at the trial of the action in the South Shields County Court.

(The case was reported in the *Builder* for July 25.)

In this case the plaintiff, a boiler-scaler, brought the action against the defendant, a delegate of the National Amalgamated Union of Labour, to recover damages on the alleged ground that he had maliciously, by threats and coercive acts, procured the dismissal of the plaintiff from the employment in which he was engaged at the time. It appeared that a few years ago the plaintiff joined the National Amalgamated Union of Labour, and had failed to pay, as ordered, a fine of 10s. Plaintiff afterwards became an employer, and ceased from that period to be a member of the union; but in 1907 he ceased to be an employer, and again joined the union, but he did not pay the fine of 10s., which still remained unpaid. The defendant, in these circumstances, went to the works where the plaintiff was employed, and saw the foreman, to whom the defendant said, "You had better stop Conway or there will be trouble with the men," and defendant added that there was trouble about money matters between Conway and the union. As a result of what the defendant said to the foreman plaintiff was dismissed from his employment. Plaintiff accordingly commenced the present action against the defendant for damages. The defence was that defendant had not been guilty of the acts complained of, and, further, that if he had been, the facts showed that there was a "trade dispute," and that defendant was entitled to the protection afforded by the Trade Disputes Act, 1906. At the trial in the County Court the jury answered the questions left to them in favour of the plaintiff, and awarded him 50*l.* damages, and judgment was entered accordingly. From this decision the defendant appealed to the Divisional Court on the grounds that the verdict was perverse and against the weight of the evidence, and, further, that even if the evidence did show any cause of action at common law, the facts disclosed that there was a trade dispute in existence, or, at any rate, in contemplation, and therefore that the defendant was entitled to the benefit of the Trade Disputes Act, 1906. The Divisional Court dismissed the appeal. Hence the present appeal of the defendant. The arguments on the appeal concluded on the 20th ult., when judgment was reserved.

The Master of the Rolls, in giving judgment, said the appeal raised questions of difficulty and of general importance to the meaning and effect of the Trades Disputes Act, 1906, and particularly of sect. 3 of that Act. It was plain that the main object of the Act was to put trade unions in a peculiar and preferential position, and to treat trade disputes differently from all other disputes. Thus sect. 1 altered the law of conspiracy—or, rather, he should say, repealed the law of conspiracy—where there was a trade dispute, but left it intact in every other case. Sect. 2 sanctioned peaceful picketing, where there was a trade dispute. Sect. 3 was probably intended as a rider to sect. 1. It altered the established common law liability of an individual, apart from conspiracy, not generally, but only where there was a trade dispute, either in contemplation or in existence. The language of sect. 3 was peculiar, and he was unable to limit its generality. It could not fairly be confined to an act done by a party to the dispute. An outsider, a mere busybody, was equally exempt from liability, although he might induce either masters or men to break contracts of employment. If there was no existing trade dispute the Act might be justified whether it prevented the contemplated trade dispute from arising or stimulated it. If, however, the trade dispute had arisen, the Act must be "in furtherance" of it, and if the Act was done by a peacemaker with a view to terminate the dispute, it was not protected. The motive of the Act, as distinct from its purpose, seemed irrelevant. The words "in contemplation" were difficult, but they must embrace an act done by a person with a view to bringing about a trade dispute. A "trade dispute" could not be limited to a dispute between a body of men on one side and a body of men on the other side. But, strange to say, it did not include a dispute between employers and employers, although it expressly included a dispute between workmen and workmen. It remained to apply sect. 3 of the Act to the facts of the present case. His lordship (having stated the facts adready reported) said he could not agree with the decision of the Divisional Court. The only question was, was there a "trade dispute" either existing or in contemplation? If there was, the action failed, having regard to sect. 3. If there was not, the plaintiff could retain his judgment. It seemed to him impossible to doubt, having regard to the findings of the jury, that there was an existing trade dispute "in furtherance" of which the threats were uttered, viz., a dispute between some members of the union and the plaintiff arising out of the non-payment of the fine. He thought it was abundantly clear that there was such a dispute. Moreover, he thought there was ground for holding that the threat was "in contemplation" of another trade dispute—viz., a dispute between the employers and the union men if the plaintiff continued to work. In his opinion it made no difference that the defendant had not the authority of the union to call out the men, and that there might have been motives of jealousy prompting the action of the defendant, and that the exaction of the fine was unreasonable after such a lapse of time. These circumstances, whether taken separately or collectively, could not affect the actual existence of a trade dispute. He thought that the appeal should be allowed, and judgment entered for the defendant with costs, both there and in the court below.

The Lords Justices concurred.

It was ordered that the 50*l.* paid into Court by the defendant should remain in Court pending an appeal by the plaintiff to the House of Lords, and that notice of such appeal should be given by October 22 next.

PAINTER'S DEATH AND THE WORKMEN'S COMPENSATION ACT.

IN the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Farwell and Kennedy, on the 31st ult., judgment was delivered in the case of Haylett *v.* Vigor & Co., on the appeal of the employers from a decision of the County Court judge at Bow, sitting as the arbitrator under the provisions of the Workmen's Compensation Act, 1906.

In this case the claim for compensation was made by the dependants of Haylett, a painter, who had worked for many years for the appellants, Messrs. Crabtree, although for a few days last August he worked for Messrs. Vigor & C. In September there were appearances that Haylett was suffering from "plumbism," and on the 25th of the month he was removed to a hospital, by which date all traces of plumbism had passed away. Haylett died on October 2, and the applicants claimed compensation under sect. 8 of the Act. The County Court judge found that the immediate cause of Haylett's death was granular kidney; that granular kidney is a sequela of lead poisoning, but is also a sequela of gout, alcoholism, heart pressure, and other complaints; and that lead poisoning was not proved to have been the cause of the granular kidney or of the death, but that, on the other hand, the employers did not prove that it was not the cause of death. Upon those findings the learned County Court judge held that the applicants had established their right to compensation, and awarded 260*l.* against Messrs. Crabtree. Hence the present appeal of Messrs. Crabtree.

The Master of the Rolls, in giving judgment, said that all that was proved was that Haylett died of granular kidney, but that did not suffice to bring the case within the operation of the section. But it was argued that subsect. 2 enlarged the scope of the section, and threw upon the employer the burden of proof. He was unable to follow that argument. That subsection pre-supposed death caused by a disease mentioned in the third schedule, and in no way altered the operation of subsect. (1). When once it had been proved that death was caused by lead poisoning or its sequelæ in the sense in which those words must be interpretated, then the burden of proof was thrown upon the employers of the deceased painter to make out that the death was not due to the nature of the employment at the date of the disablement. It was under that subsection that Messrs. Vigor, who were Haylett's last employers, were relieved from responsibility by the learned County Court judge. That subsection did not create a liability. Its only use was to saddle the liability upon the proper

person. It dealt only with evidence, and it had no effect whatever until the applicant had brought the case within the operation of the earlier part of the section. For those reasons his lordship thought that the appeal should be allowed.

The Lords Justices concurred, and the appeal was accordingly allowed with costs.

DAMAGE TO HIGHWAY BY EXTRAORDINARY TRAFFIC.

MR. JUSTICE LAWRANCE, in the King's Bench Division, on the 31st ult., delivered judgment in the case of the Rural District Council of Shepton Mallet *v.* John Wainwright & Co., Ltd.—an action by the plaintiffs under the Highways and Locomotives (Amendment) Act, 1878, to recover from the defendants 38*l.* 17*s.* 6*d.* for extraordinary expenses incurred between April 19, 1907, and March 31, 1908, by the plaintiffs, in repairing the Cranmore main road in the parishes of Doulting and West Cranmore, Somerset, within the Rural District of Shepton Mallet, by reason of damage caused by excessive weight and extraordinary traffic passing along the road in consequence of the defendants' order.

The facts of the case were these:—The defendants are the owners of a quarry known as "Moon Hill Quarry." Between March 1, 1907, and April 13, 1908, the defendants hauled stone from the quarry to Cranmore Station along the Cranmore main road by means of a traction engine and two trucks, each truck capable of carrying 10 tons of stone. The total weight of the engine and trucks when loaded was 38 tons 14 cwt. The engine and trucks made two or three journeys every weekday except Saturday, and one journey on Saturday. By reason of the above traffic going along the road it was so damaged as to require expenses in repairing, over and above the average expenses, of the amount claimed in the action. It appeared that in 1903 or 1904 the defendants contracted to repair the road, and converted it from a limestone into a basalt road at an expense of 1,400*l.* From June, 1903, to October, 1904, the defendants conducted, or caused to be conducted over the road, traffic of a similar character to that complained of, and the road was in a good state of repair in October, 1904. The plaintiffs' surveyor stated that in 1904 the road was in splendid condition; that in October, 1906, his attention was called to the bad condition of the road, and that steam haulage was the usual method of haulage in the district. Witnesses were called for the defendants that traction-engine traffic consolidated and made the road better, and that 20 tons in ten carts would do more damage than a traction-engine.

His lordship held that the traffic was carried in an extraordinary manner, and that there was excessive weight. He was of opinion that the case fell within sect. 23 of the Act of 1878, and gave judgment for the plaintiffs for 30*l.* with costs.

Mr. A. J. Simon, K.C., and Mr. Randolph appeared for the plaintiffs; and Mr. Clavell Salter, K.C., and Mr. E. Charles for the defendants.

LONDON COUNTY COUNCIL *v.* REGENT'S CANAL COMPANY.

AT the Old-street Police Court last week, before Mr. Cluer, a summons was heard, taken out by the London County Council, against the Regent's Canal Company.

Both sides were represented by counsel.

The old iron bridge, erected by Mr. J. Jay in 1858, from Packington-street to Shepherdess-walk, had been certified by Mr. Henry Lovegrove, District Surveyor, to be in a dangerous state, and for some months the traffic had been stopped by the erection of posts and rails.

After the case had been opened and the history of the bridge given, the bridge engineer of the Council explained the result of his survey, and the District Surveyor gave evidence on his certificate. The condition of the bridge was really not in dispute, but the question of ownership and liability.

The magistrate decided that the bridge was the property of the Regent's Canal Company, and the work must be executed. 10 guineas costs being allowed to the Council.

Patents of the Week.

APPLICATIONS PUBLISHED.*

13,244 of 1907.—FIRM C. F. SCHEER & CO.: *Pressure Regulator for Use in Steam-heating Systems.*

This relates to a pressure regulator for exhaust main steam conduits, in which a valve for the main steam is opened by means of a piston valve when the pressure of the exhaust steam diminishes, characterised thereby that the main steam is guided in by a nozzle in the direction of the flow of the exhaust steam, so that the main steam does not hold back the exhaust steam, but draws the latter with it.

15,188 of 1907.—J. A. GRIFFITHS and E. GRIFFITHS: *Heating and Humidifying Systems.*

This relates to a combined heating and humidifying apparatus, consisting of hot-water heating pipes surmounted by a series of troughs, each communicating with a cistern supplied with hot water from the heating system through a ball tap or the like which maintains the level of water in the cistern at that which it is desired to maintain in the troughs.

15,243 of 1907.—C. EDWARDS: *Hinges for Doors and the like.*

This relates to hinges for doors and the like, and consists in pivoting the door upon two vertical pins arranged one at the top and bottom respectively, a roller being mounted at the bottom of the door and designed to travel up an inclined plane as the door is opened, so that when the door is released the weight thereof causes the roller to travel down the said plane, thereby closing the door.

15,293 of 1907.—W. ROBSON: *Windows.*

This relates to a window with top and bottom sash, each sash to be hung on a pair of gun-metal pivots, the hanging stiles of sashes to be stop rebated on outside face for one half, the height of sash and stop rebated on the inside face for the other half of the height of sash, the window sill to be sunk, rebated, weathered, and grooved, the window frame to jambs and head to be various sizes with outside bead tongued in parting bead to jambs, only staff bead internally to jambs and sill, vertical stiles the height of each sash to be screwed to the jambs (four stiles to each pair of sashes); these stiles to be stop rebated on outside face for one half of sash, and stop rebated on inside face for the other half of the height of sash, four brass stop-plates to be screwed to the inside of frame, brass eye to be fixed to the top sash with cord, brass pulley, and brass belaying pin, and brass casement fastener to be fixed at bottom.

15,689 of 1907.—G. J. PORTUGALL: *Fire Grates, Kitchen Ranges, and the like.*

This relates to fire grates, kitchen ranges, and the like. The grate is substantially V-shape in longitudinal section, so as to provide an inclined front grid and an oppositely inclined grid or back, and the front grid and rear grid or back are mounted upon a frame which may be provided to be inserted within a fireplace in substitution of the usual grate bars and grid. A front door is provided or damper advantageously hinged at the lower part of the frame, so that the front of the grate may be completely closed when occasion requires. The rear part of the grate may take the form of a grid or comb, so that a supplementary supply of air from the back of the fireplace, in addition to that from the front, is provided. In a range or stove combined with a boiler, a boiler is provided immediately at the rear of the grate, and a flue is provided passing directly through the boiler so that thus the heat of the flames and gases may be more completely utilised. In such a case the back or rear grid of the grate may be dispensed with, and the front of the boiler may be provided of such an inclined form as to form with the front grid a substantially V-shaped cavity for the fire. In connexion with the invention flues may be provided to pass round the ovens and boiler, the ovens being preferably arranged upon each side of the fire and the boiler so that the gases may, after passing round the ovens, pass to the back flue, and the flues may be provided with dampers for the regulation of the products of combustion through them.

15,879 of 1907.—C. DRESSLER: *Fixing of Tiles and the manufacture of the Tiles to be Fixed.*

This relates to fixing tiles together by locking clips, each constituting a more or less dovetail recess adapted to receive more or less correspondingly-shaped projections on the tiles to receive projections on such tiles which do not individually, but do collectively, correspond more or less in shape to the clip recess aforesaid; or to receive projections of both of the characters referred to, the locking clip being produced from sheet metal, such as mild steel, by stamping a blank therefrom and bending the same to a shape in which side-wings converge one towards another so as to constitute a more or less dovetail recess. The tile has two or more undercut shoulders at the back thereof arranged parallel one to another, and of constant section throughout their length, and the tile gradually increases in thickness from undercut shoulders at opposite edges towards the centre thereof. The tiles are manufactured by pressing the material through a die conforming to the section of the tile, taken at right angles to the ribs, in a machine such as used in making bricks and slabs, so that the tile material is forced edgewise out of the die in the plane of the tile in a direction parallel to the undercut shoulders thereon.

18,621 of 1907.—A. WILLSTEIN: *Sliding Doors.*

This relates to sliding-door suspension mechanism, consisting of parallelograms swinging about several fixed points, characterised by the well-known first suspension parallelogram being supported on two links which have fixed points respectively, and by the second suspension parallelogram connected to the first parallelogram in two points, and being suspended with the first parallelogram in such a manner that the counter link of the link belonging to both parallelograms is extended and suspended at a fixed point.

20,632 of 1907.—W. H. REVELL: *Means for Operating the Gates of Hoists or Lifts.*

This relates to means for operating the gates or doors of hoists or lifts, consisting of a hydraulic cylinder fitted with a piston arranged near each hoist-well opening, a rod extending from the piston carrying a pulley or pulleys, round which a chain, cable, or the like is passed (one end of such chain being secured to a fixed support and the other end to the hoist-gate or door), pulleys for guiding the chain or cable pipes from a hydraulic pressure supply connected with each cylinder for feed and exhaust, a valve connected to the feed pipe, a star wheel connected with the spindle of the valve, and movable brackets adapted to be placed in operable and non-operable position carried by the hoist cage.

20,686 of 1907.—F. MOORMAN: *Clamps for Laying Floors.*

This relates to a flooring dog or cramp, comprising a frame of an angle-iron designed to be clamped to a joist which is situated between one arm of the angle-iron extending downwards, and a toothed or serrated cam clamp pivoted to the horizontal arm of the angle-iron, the distance between the angle-iron of the clamp being adjustable by means of a bolt sliding in a groove in the angle-iron, the said clamp being secured by means of a wing-nut. The clamp is operated by means of a foot lever which is merely pressed in position by the foot of operator. The frame is furnished at each extremity with a lug, through which slides a toothed rack provided with a toe at one extremity, whilst between upstanding lugs upon the said frame is pivoted a lever directly over the said rack. At points above and below the fulcrum of said lever are respectively pivoted two pawls both designed to engage teeth of the rack, so that as the lever is oscillated teeth with the toe bearing against the floor board is forced forward, thus pressing the said boards closely together, both the backward and forward oscillation of the lever propelling the rack. When limit of travel has been reached the pawls are disengaged by lifting them from the rack by means of a bar coupled thereto by links, when the rack can be pressed back to its normal position, a rod connected to the bar and passing up through the lever, and a cross-bar designed to slide vertically in a slot in the lever being provided to facilitate the disengagement of the pawls.

15,808 of 1907.—A. L. JOHNSON: *Bars for Reinforcing Concrete.*

This relates to a bar for reinforcing concrete, having on each of two opposite faces a series of transversely-inclined parallel ribs and depressions, the ends of the ribs on one face being opposite the ends of the depressions in the opposite face, and the ribs being slightly wider than the depressions; whereby the ribs on the face are arranged to compensate for the depressions in the opposite face, and whereby a cross-sectional area of the bar is substantially uniform throughout its length; the bar having two opposite substantially counterpart faces, each of said faces having a series of parallel ribs and depressions, the initial point in the medial line of a rib being in the same plane perpendicular to the axis of the bar, as the final point in the medial line of the next adjacent depression, of the same face as the final point of the medial line of the corresponding depression in the opposite face.

16,054 of 1907.—J. ABBOTT: *System of Excavating and the Construction and Operation of the Scoops, Buckets, or Scrapers Employed Therein for Conveying and Discharging the Material Excavated.*

This relates to a system of excavation, consisting in the employment of a pair of ropes, to each of which a scoop, bucket, or scraper can be attached, and each rope connected with a pair of drums mounted on a pair of traction or ploughing engines in such a way as to be

PATENTS.—*Continued on page 174.*

* All these applications are in the stage in which opposition to the grant of patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues Those with an asterisk (*) are advertised in this Number: Competitions, —; Contracts, iv. vi. viii. x.; Public Appointment, xv.; Auction Sales, xxiv.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competition.

NO DATE.—**Littlehampton.**—DRAINAGE.—Littlehampton U.D.C. invite engineers to submit plans and sections with estimate of cost of a scheme of drainage of part of the District of Littlehampton (including the parish of Wick and the hamlet of Toddington). Instructions and conditions will be forwarded on application to Mr. A. Shelley, Clerk to the Council, Town Offices, Littlehampton.

Contracts.

BUILDING.

AUGUST 8.—**Dovercourt.**—SCHOOL.—Essex Education Committee (Governors of Harwich County High School) invite tenders for new school to be erected at Dovercourt (accommodation 132). Names to the architects, Messrs. Brown & Burgess, Arcade-street, Ipswich. A charge of 1*l.* 1*s.* will be made for specification and quantities.

AUGUST 8.—**Nantymoel.**—CHAPEL.—Congregational Chapel, Nantymoel. Plans, etc., to be seen at the Rev. T. Hirwen Jenkins and with Mr. David Davies, at 178, Habershon-street, Splott, Cardiff.

AUGUST 8.—**Trooperstown.**—SCHOOLHOUSE.—Erection of a schoolhouse at Trooperstown, near Rathdrum, Co. Wicklow, according to plans, etc., which can be seen and copied at the office of Mr. F. Pansing, C.E., Church-hill, Wicklow.

AUGUST 10.—**Aldershot.**—REPAIRS.—Aldershot Education Committee invite tenders for repairs and work to be done at the several schools during the coming vacation. Full particulars, etc., can be obtained of Mr. Norman Clinton, Clerk, 4, Station-road, Aldershot.

AUGUST 10.—**Barham.**—HOSPITAL.—The R.D.C. of Bosmere and Claydon invite tenders for the erection of Isolation Hospital at Barham. Specifications, prepared by Messrs. Bishopp & Cautley, architects, Ipswich. Application to Mr. R. M. Cook, Clerk to the Council, 6, Providence-street, Ipswich.

AUGUST 10.—**Elland.**—MILL.—Erection of a mill, engine and boiler house, and chimney, also for the construction of a small reservoir at Spa Well-lane, Elland. Plans, etc., may be seen, and bills of quantities obtained, at offices of Messrs. Joseph Walsh & Graham Nicholas, F.R.I.B.A., architects, Museum-chambers, Halifax.

AUGUST 10.—**Great Yarmouth.**—PARTITION, ETC.—The Education Committee invite tenders from local tradesmen for the erection of sliding partition and laboratory bench at the Nelson Boys' School. Further particulars may be obtained from the Borough Surveyor, Town Hall, Great Yarmouth.

AUGUST 10.—**Guisborough.**—REORGANISATION.—North Riding of Yorkshire C.C. Education Committee invite tenders for reorganisation of the Guisborough Northgate Council School. Plans, etc., at the school.

AUGUST 10.—**Hawes, Widdale.**—SCHOOL ALTERATIONS.—North Riding of Yorkshire C.C. Education Committee invite tenders for alterations and additions to Hawes, Widdale Council School. Plans, etc., at the offices of Mr. S. H. Willan, Solicitor, Hawes.

AUGUST 10.—**Hull.**—EXTENSION OF PREMISES.—Mr. Ernest Whitlock, architect and surveyor, 26, Scale-lane, Hull, invites tenders for extension of Westcott-street, Holderness-road.

AUGUST 10.—**Springwell.**—SUNDAY SCHOOLS.—Extensions to the Wesleyan Sunday School at Springwell, near Gateshead. Plans, etc., at office of Mr. J. Walton Taylor, F.R.I.B.A., architect, St. John-street, Newcastle.

AUGUST 11.—**Birkenhead.**—ALTERATIONS.—The Guardians of the Birkenhead Union invite tenders for alterations to scullery and erection of four additional bedrooms at the Nurses' Home, Union Workhouse, Birkenhead. Copy of the specifications from Messrs. E. Kirby & Sons, architects, 5, Cook-street, Liverpool, upon payment of 20*s.*

AUGUST 11.—**Carlisle.**—BUILDINGS.—New buildings on the Edmond Castle Estate, near Carlisle. Plans, etc., at the offices of Mr. T. Taylor Scott, F.R.I.B.A., architect, 38, Lowther-street, Carlisle.

AUGUST 11.—**Itchingfield.**—SCHOOL ALTERATIONS.—West Sussex and Chichester Joint Education Committee invite tenders for alterations and additions to the Itchingfield Council School. Plans, etc., may be seen, and specification, etc. (no quantities), obtained, on application to Mr. Hudyn P. Roberts, A.R.I.B.A., County Education Architect, Education Offices, Horsham, on payment of a deposit of 1*l.* 1*s.*

AUGUST 11.—**Silloth.**—COACH-HOUSE, ETC.—Holme Cultram U.D.C. invite tenders for the erection of coach-house, etc., and general repairs to Isolation Hospital, Silloth. Plans, etc., can be seen, and all information obtained, from Mr. George Armstrong, architect, etc., 24, Bank-street, Carlisle.

AUGUST 11.—**Welshpool.**—CARPENTERS' WORK, ETC.—Tenders are invited for carpenters' work and painting at 1, Hall-street. Specifications and other particulars can be obtained from the Borough Surveyor.

AUGUST 12.—**Cowdenbeath.**—SCHOOL.—Large new higher-grade, elementary, supplementary, and mining school, Cowdenbeath. Plans may be seen, and specifications, etc., obtained, from Mr. William Birrell, architect, Kirkcaldy, on payment of 3*l.* 3*s.* for each trade.

AUGUST 12.—**Govan.**—SUBWAY.—The Govan Combination P.C. invite tenders for brick, etc., works in proposed new duct, iron railings, at Merryflatts, Govan. Plans can be seen, and copies of schedules had, on application to the architects, Messrs. Thomson & Sandilands, 4, Jane-street, Blythswood-square, on payment of 1*l.* 1*s.*

AUGUST 12.—**King's Lynn.**—HOUSE.—House to be erected on the West Winch-road, King's Lynn, for Mr. J. J. Wright. Plans, etc., at the office of Mr. A. F. Scott, architect and surveyor, 24, Castle-meadow, Norwich. The plans, etc., can also be seen at Mr. J. J. Wright's, 125, London-road, King's Lynn.

AUGUST 12.—**New Tredegar.**—HOUSES.—Erection of thirty-five or more houses at New Tredegar for the Birchgrove Building Club. Plans, etc., may be seen on application to Mr. D. W. Price, architect, New Tredegar.

AUGUST 12.—**Shotton Colliery.**—STORE PREMISES.—Sherburn Hill Co-operative Society invite tenders for the whole of the works required in the erection of boot and tailoring departments at the Shotton Colliery Branch Stores. Plans, etc., upon application to the Branch Manager at Shotton Colliery.

AUGUST 12.—**Sunderland.**—STABLES.—New stables, etc., back Trimdon-street, for Messrs. Steel & Co. Plans may be seen, and quantities obtained, at the office of the architect, Messrs. Wm. & T. R. Milburn, FF.R.I.B.A., 20, Fawcett-street.

AUGUST 12.—**Westham.**—OFFICES FOR SCHOOL.—East Sussex Education Committee invite tenders for the erection of new offices for the Public Elementary Council (Mixed) School at Westham, in the County of Sussex. Names and addresses to Mr. F. J. Wood, County Surveyor, County Hall, Lewes.

AUGUST 12.—**Worsboro' Bridge.**—VICARAGE HOUSE.—Building of a vicarage house for the Parish of St. James, Worsboro' Bridge, near Barnsley. Plans may be seen at offices of Messrs. T. H. & F. Healey, architects, Tyrrel-street, Bradford, and duplicates at St. James's School, Worsboro' Bridge.

AUGUST 13.—**Fence Houses.**—WORKMEN'S CLUB.—A Workmen's Club at Bank Head, Fence Houses. Plans, etc., can be seen at architect's office, Mr. Palliser, Philadelphia, Fence Houses.

AUGUST 14.—**Fintray Estate.**—HOUSE.—Estimates are wanted for the mason, carpenter, slater, and plaster works of dwelling-house to be erected at Forresterseat, Fintray. The plans, etc., may be seen either at Forresterseat, in the hands of the tenant there, or at the office of Messrs. Alex. Stronach, jun., & Son, advocates, 20, Belmont-street, Aberdeen.

AUGUST 14.—**Lochgelly.**—HOUSES.—Estimates are wanted for the mason, etc., works proposed to be executed in erecting houses at New-street, next Bowling Green, Lochgelly, for Mrs. Dick. Schedules of quantities may be had on application to Messrs. Muirhead & Rutherford, architects and surveyors, 4, Abbey Park-place, Dunfermline.

AUGUST 14.—**Rhondda.**—PREMISES.—The Committee of the Mid-Rhondda Co-operative Society, Ltd., invite tenders for the erection of their new central premises. Plans, etc., prepared by the architects, the Co-operative Wholesale Society, Manchester, may be seen at the Society's premises in Gilmour-street, Tonypandy.

AUGUST 14.—**Wales-Kiveton Park.**—SCHOOL ALTERATIONS.—West Riding C.C. Education Committee invite tenders for alterations and additions at the Wales-Kiveton Park Provided School, near Sheffield. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l.* is required. Cheques, etc., must be made payable to the West Riding Treasurer, and sent to him direct at the County Hall, Wakefield.

AUGUST 15.—**Ellon.**—SCHOOL ADDITIONS.—The mason, carpenter, slater, plaster, plumber, painter, and heating works in connexion with proposed alterations and additions at Ellon Public Schools. Plans, etc., may be seen with, and schedules of quantities obtained from, Mr. Wm. Davidson, architect, Ellon.

AUGUST 17.—**Salford.**—WALL.—Salford Electricity Committee invite tenders for pointing buildings and pulling down and rebuilding a short length of wall at the Frederick-road Electric Mains Depôt. Specifications, etc., may be obtained from the Borough Engineer, Town Hall, Salford.

AUGUST 18.—**Ekowen.**—CLASS-ROOMS.—Erection of class-rooms, vestry, and other work for Hermon Calv. Meth. Church, Skewen. Plans, etc., may be seen with Mr. Geo. Beynon, Wern-road, Skewen.

AUGUST 20.—**Anglesea.**—ADDITIONS, ETC., TO DWELLINGS.—Additions and alterations to the dwellings at the North Stack Fog Gun Station, in the County of Anglesea, North Wales. The plans may be inspected, and forms of tender, etc., obtained, on application to the Superintendent, Trinity Store, Holyhead.

AUGUST 20.—**Oban.**—POST-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for a new post-office at Oban. Drawings, etc., may be seen on application to the Postmaster. Bills of quantities, etc., may be obtained at H.M. Office of Works, Parliament-square, Edinburgh, on payment of 1*l.* 1*s.*

AUGUST 22.—**Stafford.**—ALTERATIONS.—The Corporation of Stafford invite tenders for alterations at 6 and 7, Foregate-street. Plans, etc., on application to Mr. W. Blackshaw, Borough Engineer.

AUGUST 24.—**Armagh.**—RENOVATION.—Armagh U.D.C. invite tenders for the renovation of Tontine Buildings for use as Town Hall. Plans, etc., by Mr. John Caffrey, M.R.San.I., Armagh, may be seen at office of Mr. James Lennon, Town Clerk, U.D.C. Offices, Armagh. Form and schedule of quantities may be obtained by making a deposit of 1*l.* 1*s.*

AUGUST 27.—**Ilford.**—SCHOOL ADDITIONS, ETC.—Ilford Education Committee invite tenders for alterations and additions to the small public elementary school in Beehive-lane, Ilford. Plans, etc., may be seen, and forms of tender obtained, on application to the architect, Mr. C. J. Dawson, F.R.I.B.A., 11, Cranbrook-street, Ilford.

* SEPTEMBER 1.—**Rochester.**—WHARF.—The Corporation of Rochester invite tenders for a wharf (in timber) at the Common Creek on the River Medway at Rochester. See advertisement in this issue for further particulars.

SEPTEMBER 5.—**Leicester.**—HOUSE.—The Sewage Works and Farms Committee of the Leicester Corporation invite tenders for the erection and construction of a Superintendent's House in connexion with the Beaumont Leys Farm Bacterial Works. Particulars may be obtained at office of Mr. E. George Mawby, M.Inst.C.E., Borough Engineer, Town Hall, Leicester, on payment to the Borough Treasurer of the sum of 2*l.*

* SEPTEMBER 9.—**Letchworth.**—SCHOOL.—The Herts C.C. Education Committee invite tenders for new County Council School at Letchworth Garden City. See advertisement in this issue for further particulars.

* SEPTEMBER 9.—**London, W.**—SHOPS AND SHOWROOMS.—Tenders are invited for a block of shops and showrooms in Great Portland-street, W. See advertisement in this issue for further particulars.

NO DATE.—**High Wycombe.**—ALTERATIONS.—The Borough of High Wycombe Education Committee invite tenders for (1) alterations and repairs to cottages; (2) new iron fencing to inclose site of Spring-gardens Schools. For particulars apply Mr. Thos. Thurlow, architect, High-street, High Wycombe.

NO DATE.—**Kippax.**—ALTERATIONS.—The bricklayer, joiner, and plumber's work required in minor alterations to the head teacher's house at the Kippax Provided School. Specifications, etc., may be obtained from Mr. R. J. Smith, Education Offices, Garforth, near Leeds.

NO DATE.—**Lydney.**—COTTAGES.—Two cottages to be built at Lydney, for Mr. Richard Phipps, J.P., Buckenshill, Bromyard. Plans, etc., by appointment with Mr. W. Coldrick, Drockholland, Lydney.

NO DATE.—**Mirfield.**—NEW WORKS.—The Mirfield Engineering Company, Ltd., invite tenders for the erection of their proposed new works, situated in Mirfield. Plans, etc., may be had on payment of 10*s.* Applications to the registered office of the Company, Newgate, Mirfield.

NO DATE.—**Sheffield.**—CHAPEL.—Primitive Methodist Church in Greystones-road. Quantities, etc., on application to Mr. H. Harper, architect, 54, Long-row, Nottingham.

NO DATE.—**South Uist.**—SCHOOL.—The School Board of the Parish of South Uist invite tenders for the erection of a school, to accommodate 104 scholars, with dwelling-houses, at Lochboisdale, South Uist. Also, for a school, to accommodate thirty scholars, with dwelling-house, situated at East Gerinish, South Uist. Plans, etc., prepared by Mr. John Wedderspoon, C.E., Inverness.

ENGINEERING, IRON, AND STEEL.

AUGUST 10.—**Acton.**—WATER-SOFTENING APPARATUS.—The U.D.C. of Acton invite estimates for the erection of two water softeners in connexion with the two Babcock & Wilcox tubular boilers (heating surface, 1,741 *sq. ft.* each), to be installed at the Dust Destructor, "The Friars," Acton. A block plan of the site of the destructor may be seen at 37, High-street, Acton.

AUGUST 10.—**Dublin.**—RAILS, ETC.—Great Northern Railway Company (Ireland) invite tenders for the

supply of 3,000 tons of 90 lb. steel bullhead rails, with the necessary fishplates, and 1,850 tons of cast-iron chairs. Specifications, etc., can be obtained from the Secretary on payment of 1s. each (not returnable). Mr. T. Morrison, Secretary, Secretary's Office, Amiens-street Terminus, Dublin.

AUGUST 10.—**Dublin.**—RAILS, ETC.—Great Southern and Western Railway Company (Ireland) Directors invite tenders for the supply of the following material:—6,000 tons steel bull-head rails, 150 tons steel fish-plates, 4,000 tons cast-iron chairs, in accordance with specifications, which can be obtained on application to the Engineer of the Company, Inchicore, Dublin. The specifications for the rails, fish-plates, and chairs are upon separate forms, and a charge of 5s., which is not returnable, will be made for each specification.

AUGUST 12.—**Manchester.**—ELECTRICITY WORKS.—The Electricity Committee of the Manchester Corporation invite tenders for the supply, delivery, and erection of the following:—(a) One storage battery at Stuart-street Generating Station; (b) low-pressure pipework. Specifications, etc., may be obtained on application to Mr. F. E. Hughes, Secretary, Electricity Department, Town Hall, Manchester, on payment of a deposit fee of 2l. 2s. for each specification. Further particulars, etc., can be obtained from Mr. S. L. Pearce, Chief Electrical Engineer, Dickinson-street, Manchester.

AUGUST 15.—**Rawtenstall.**—TRAMCARS, ETC.—The Corporation of Rawtenstall invite tenders for the supply, delivery, and erection, at the Electricity Works, Rawtenstall, Lancashire, of sixteen tramcars (Contract No. 4), and for station lighting, wiring to motors, testing instruments, etc. (Contract No. 12). Copies of the general conditions, etc., may be seen at the offices of the engineers, Messrs. Lacey, Sillar, & Leigh, 2, Queen Anne's-gate, Westminster, and 78, King-street, Manchester, and may be obtained from the former office only on payment of a deposit of 5l. 5s. for Contract No. 4 and 1l. 1s. for Contract No. 12.

AUGUST 17.—**Ilford.**—ELECTRICITY WORKS.—Ilford U.D.C. invite tenders for extensions to their Electricity Works, Ley-street, Ilford. Drawings, etc., may be obtained at the office of Mr. H. Shaw, M.Inst.C.E., Town Hall, Ilford, on payment of a deposit of 2l. 2s.

AUGUST 20.—**London.**—BRIDGES.—The Mexican Railway Company, Ltd., invite tenders for the supply and delivery of girder bridges. Specifications, etc., can be obtained at the Company's office on payment of 5s. each. Mr. John T. Denniston, Secretary, the Mexican Railway Company, Ltd., 6, Broad-street-place, London, E.C.

AUGUST 24.—**Bristol.**—FOOTBRIDGE OVER GREAT WESTERN RAILWAY.—The Bristol Docks Committee invite tenders for the construction and maintenance for twelve months after completion of a footbridge over the Great Western Railway Company's lines at Portishead Station. Copies of the specification, etc., can be obtained from Mr. W. W. Squire, Engineer, Engineer's Office, Cumberland-road, Bristol, on production of a receipt showing that a deposit of 3l. has been paid to the Secretary of the Docks Committee, 19, Queen-square, Bristol.

AUGUST 24.—**Brumby, etc.**—SEWERAGE AND SEWAGE DISPOSAL WORKS.—The U.D.C. of Brumby and Frodingham invite tenders for the supply and erection of four 50-gallons sewage ejectors, electrical motor, oil or petrol engine, two air compressors, switchboard, and engine accessories, also for about 390 yds. of cast-iron air mains, 630 yds. cast-iron rising mains, and 600 yds. of electric cable laid complete. Plans, etc., may be seen, and specifications, etc., may be obtained, on application to Messrs. Strachan & Weekes, civil engineers, 9, Victoria-street, Westminster, London, on payment of a deposit of 3l. 3s. by cheque.

AUGUST 25.—**West Hartlepool.**—DOCK ENTRANCE.—The Directors of the North-Eastern Railway invite tenders for the construction of a new entrance from the West Harbour to the Coal Dock, West Hartlepool; also for the construction of necessary temporary timber dams and dolphins, the excavation and removal of the old entrance, etc. Plans may be seen, and specification obtained, on personal application to Mr. T. M. Newell, Dock Engineer's Office, Hull.

AUGUST 26.—**Edmonton.**—HOT AND COLD WATER SUPPLIES.—The Guardians of the Edmonton Union invite tenders for installing hot and cold water supplies, hot-water heating, ventilation, fire hydrants, and gas supply at the nurses' home at the new Infirmary, Upper Edmonton, N., now being erected under the architect, Mr. Stuart Hill, 105, Cannon-street, E.C. Copies of the specification can be obtained on payment of 5l. 5s. (cheque). Mr. Alexander Drew, engineer, 154-5, Temple-chambers, Temple-avenue, E.C., where also the plans can be seen.

AUGUST 26.—**Hinckley.**—SHAFT AND HEADINGS.—Hinckley U.D.C. invite tenders for the construction of a pilot shaft and headings or drifts at Snarestone, adjacent to their Snarestone Pumping Station. The plans may be inspected, and specification, etc., may be had, on payment of the sum of 2l. 2s., on application at the office of the Surveyor at the Council Offices, Hinckley, or at the office of Messrs. T. & C. Hawksley, 30, Great George-street, Westminster, S.W.

AUGUST 26.—**Hinckley.**—TANK ENLARGEMENT.—Hinckley U.D.C. invite tenders for the enlargement of the high-level cast-iron tank on the tower at their waterworks at Hinckley. The plans may be inspected, and specification, etc., may be had, on payment of the sum of 2l. 2s., on application at the office of the Surveyor at the Council Offices, Hinckley, or at the office of Messrs. T. & C. Hawksley, 30, Great George-street, Westminster, S.W.

* AUGUST 26.—**Upper Edmonton.**—WATER SUPPLY, HEATING, ETC.—The Guardians of the Edmonton Union invite tenders for installing hot and cold water supplies, hot-water heating, ventilation, fire hydrants, and gas supply at nurses' home at the new Infirmary, Upper Edmonton. See advertisement in this issue for further particulars.

SEPTEMBER 1.—**Grays.**—ELECTRIC STORAGE BATTERY.—The Metropolitan Asylums Board invite tenders for the installation of electric storage battery, motor-driven booster, switchboard, and connexions, etc., at the Training Ship *Exmouth*, Grays, Essex, in accordance with drawings, etc., prepared by Mr. W. T. Hatch, M.Inst.C.E., M.Inst.M.E., Engineer-in-Chief. Drawings, etc., may be inspected at the Office of the Board, Embankment, London, E.C., and can be obtained upon payment of a deposit of 2l.

SEPTEMBER 1.—**Watford.**—PLANT.—Watford U.D.C. invite tenders for one surface condenser, complete with steam-driven pumps. Copies of specification, etc., can be obtained from Mr. Fredk. W. Purse, A.M.Inst.E.E., A.M.Inst.M.E., Chief Electrical Engineer, Electricity Works, Watford, upon payment of a deposit of 1l. Extra copies of specification may be obtained upon payment of 5s.

* SEPTEMBER 1.—**Woolwich.**—IRONING MACHINE.—The Metropolitan Asylums Board invite tenders for a new ironing machine in staff laundry at Brook Fever Hospital, Woolwich. See advertisement in this issue for further particulars.

SEPTEMBER 7.—**Madras.**—PIPES.—The Corporation of Madras invite tenders for about 4,350 ft. of steel pipes, 42 in. in diameter, together with the necessary collars and accessories. Full particulars, etc., can be obtained from Messrs. James Mansergh & Sons, Agents to the Corporation, 5, Victoria-street, Westminster, S.W., on payment of 5s. per set, which will not be returned.

NO DATE.—**Gloucester.**—SLUICE GATE.—Constructing sluice gates suitable for outfall on flood land against River Severn, near Gloucester. Address R. T., o7646, Address and Inquiry Office, *Hereford Times*, Hereford.

MISCELLANEOUS.

AUGUST 10.—**Bermondsey.**—CARTAGE.—The Guardians invite tenders for the cartage and removal of the several portions of a corrugated-iron and wood building, recently pulled down, from the Infirmary, Lower-road, Rotherhithe, S.E., and to deposit the same at the Schools, Wickham-road, near Croydon. Forms at the office of Mr. E. Pitts Fenton, Clerk, 283, Tooley-street, S.E.

AUGUST 10.—**Bristol.**—PULLING DOWN.—Bristol Docks Committee invite offers for the purchase and removal of the buildings comprising the cattle lairs and slaughter-houses, at the Foreign Animals Wharf, Cumberland Basin, situated upon land at present leased by the Docks Committee from the Society of Merchant Venturers, and alternatively tenders for taking down the buildings and removing the materials to Portishead. Plans, etc., may be seen, and the buildings may be inspected, on application to the Engineer's Office, Underfall-yard.

AUGUST 11.—**Hauxley.**—STREET LIGHTING.—The Hauxley P.C. invite tenders for the provision and erection of poles, lamps, transformers, and aerial wiring the streets of Radcliffe Village. Further information to be obtained from Mr. W. Gibson, 94, Queen-street, Amble.

AUGUST 13.—**Hipperholme.**—SCAVENGING.—Hipperholme U.D.C. invite tenders for the work of night-soil scavenging. Conditions, etc., may be obtained at the Council Offices, Hipperholme.

AUGUST 13.—**Stokesley.**—LIGHTING.—Stokesley P.C. invite tenders for lighting the town streets with gas or oil, and for the maintaining and fixing of the necessary lamps and posts. Forms of tender may be obtained from Mr. Thos. Glasper, Clerk to the Council, Stokesley.

AUGUST 17.—**Dublin.**—SIGNAL ALTERATIONS.—Great Northern Railway Company (Ireland) Directors invite tenders for the alteration of the signalling at Navan Junction. Drawing, etc., at the office of Mr. W. H. Mills, Engineer-in-Chief, Amiens-street, Dublin, or copies of them at the office of the District Engineer, Belfast.

AUGUST 17.—**Grimsby.**—DISINFECTANT.—The Corporation of Grimsby invite tenders for the supply of fluid disinfectant. Forms of tender may be had on application to the Sanitary Inspector, Municipal Offices, Victoria-street, Grimsby.

AUGUST 17.—**Wantage.**—STEAM ROLLING, ETC.—Wantage U.D.C. Highways Committee invite tenders for steam rolling and scarifying. Further particulars, with form of tender, may be obtained from the Surveyor.

AUGUST 19.—**Bilston.**—FIRE-ENGINE.—Bilston U.D.C. invite tenders for supplying a 300-gallon double-cylinder or double vertical steam fire-engine. Mr. John D. Wassell, Clerk of the Council, Town Hall, Bilston.

AUGUST 19.—**Ticehurst.**—STEAM ROAD ROLLING.—Ticehurst R.D.C. invite tenders for steam rolling. Forms of tender may be obtained from Mr. W. N. Wood, Surveyor, Ticehurst, on a stamped addressed foolscap envelope being forwarded.

AUGUST 27.—**King's Lynn.**—TAKING DOWN.—The Corporation invite tenders for labour in taking down the property known as "Paradise," King's Lynn. Mr. J. H. Webb, Borough Surveyor.

SEPTEMBER 1.—**Rochester.**—STREET LAMPS.—The Corporation invite tenders for the supply of 106 street lamps fitted with incandescent burners. Full particulars can be obtained on application to Mr. William Banks, A.M.Inst.C.E., City Surveyor, Guildhall, Rochester.

NO DATE.—**High Wycombe.**—FENCING.—Wrought-iron boundary fencing, at new schools, Spring-gardens, High Wycombe, for the Borough Education Committee. For particulars apply to Mr. Thos. Thurlow, architect, High Wycombe.

PAINTING, etc.

AUGUST 10.—**Greetland.**—PAINTING.—Painting of fifteen houses in Clay House-lane, Greetland. Plans can be seen, and specifications obtained, at the offices of the architects, Messrs. Richard Horsfall & Son, 22a, Commercial-street, Halifax.

AUGUST 10.—**Isle of Wight.**—PAINTING.—The Committee of the Royal Isle of Wight County Hospital and Convalescent Home invite tenders for outside painting. A copy of the specification may be had on application to the Secretary at the Hospital.

AUGUST 10.—**Manchester.**—PAINTING, ETC.—The Parks Committee invite tenders for painting and repairs at Brookdale Hall, Newton Heath. Specification may be seen at the office of the City Architect, Town Hall.

AUGUST 10.—**Nottingham.**—PAINTING OF CORPORATION PROPERTY.—The Estates Committee invite tenders for outside painting, etc. at properties. Specifications, etc., may be obtained on application at the City Architect's Office on payment of a deposit of 10s. for each contract.

AUGUST 10.—**Uxbridge.**—PAINTING.—The Churchwardens of St. Margaret's Parish Church invite tenders from builders carrying on business within the Uxbridge Urban District for the painting and repair of the fencing and walling, etc., of the Old Burial Ground, Windsor-street, Uxbridge. Specification to be obtained from Mr. William L. Eves, 54, High-street, Uxbridge.

AUGUST 11.—**Halifax.**—PAINTING.—The Health Committee of the Halifax Corporation invite tenders for painting work required at the Goux Department, also for paving a portion of the depôt yard. Specifications may be seen, and forms of tender obtained, on application to Mr. James Lord, C.E., Borough Engineer, Town Hall, Halifax.

* AUGUST 11.—**St. George-in-the-East.**—PAINTING.—The Guardians of St. George-in-the-East invite tenders for painting the Infirmary, Clerk's Offices, and Nurses' Home. See advertisement in this issue for further particulars.

NO DATE.—**Merioneth.**—PAINTING.—The Merioneth Education Committee invite tenders for painter's work required to be done at schools. The specification, etc., may be obtained on application to the architects, Messrs. Deakin & Howard Jones, M.S.A., Plas Ynys, Borth, R.S.O.

NO DATE.—**Sherburn Hill.**—PAINTING.—Sherburn Hill Co-operative Society, Ltd., invite tenders for painting corrugated-iron Co-operative Hall, large shed, and harness-room. For particulars apply at the Stores. Mr. T. Robson, Secretary.

ROADS, SANITARY, AND WATER WORKS.

AUGUST 10.—**Barsdon.**—PRIVATE STREET WORKS.—Barsdon U.D.C. invite tenders for the excavating, levelling, paving, channelling, surface draining, and making streets. Plans, etc., may be seen at the Council Offices, Shiremoor, on application to Mr. J. R. MacMillen, Surveyor.

AUGUST 10.—**Halifax.**—IMPROVEMENT WORKS.—The Highways Committee of the Halifax Corporation invite tenders for the execution of private improvement works in streets on Pye Nest Estate, and Mile Cross-road. Plans, etc., may be seen, and forms of tender obtained, on application to Mr. James Lord, C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1l.

AUGUST 10.—**Leeds.**—PAVING, ETC.—The Highways Committee invite tenders for the paving and flagging of streets. Drawings may be seen at the City Engineer's Office, Municipal Buildings. Forms, etc., on application at the Highways Office, 155, Kirkstall-road.

AUGUST 10.—**Timperley.**—SEWER.—Bucklow R.D.C. invite tenders for Brook-lane sewer, Timperley. Plan, etc., can be seen, and other necessary information obtained, on application to Mr. J. McD. McKenzie, Surveyor to the Council, at Mossburn-buildings, Altrincham.

AUGUST 11.—**Brentford.**—DRAINAGE.—The Guardians invite tenders for the reconstruction of the drainage of a portion of the Union Offices, and for the execution of other work. Plan, etc., can be seen at offices of Mr. William Stephens, Clerk to the Guardians, Union Offices, Isleworth, Middlesex.

AUGUST 11.—**Brentford.**—SANITARY ACCOMMODATION.—The Guardians invite tenders for the erection of additional sanitary accommodation at the Workhouse. Plan, etc., can be seen at offices of Mr. William Stephens, Clerk to the Guardians, Union Offices, Isleworth, Middlesex.

AUGUST 11.—**Loanhead.**—TANK.—The T.C. of Loanhead invite tenders for the construction of a concrete clear-water storage tank at Hillend. Drawings may be seen, and copies of schedule, etc., obtained, at the office of Mr. G. Somervel Carfrae, C.E., 1, Erskine-place, Edinburgh, on payment of 1l.

AUGUST 11.—**Northwich.**—STREET PAVING.—The U.D.C. of Northwich invite tenders for excavating, levelling, and paving part of Witton-street. Plan, etc., may be seen at the Council Offices, Northwich.

AUGUST 11.—**Salford.**—SEWERING, ETC.—Sewering, paving, flagging, etc., of eighteen streets. Plans, etc., may be seen, and forms of tender with quantities obtained, at the office of the Borough Engineer.

AUGUST 12.—**Burntisland.**—WATERWORKS.—The T.C. invite tenders for:—(1) Excavation, embankment, etc., work to be executed in constructing an embankment across part of the reservoir at Cullaloe; (2) providing and laying about 100 tons cast-iron pipes, valves, etc. Schedules for these works may be had from Mr. J. Alexr. Waddell, Burgh Surveyor, Burntisland, on payment of 1l.

AUGUST 12.—**East Farleigh.**—DRAINAGE.—Kent Education Committee invite tenders for the construction of a cesspit and drainage at East Farleigh Council School. Plans, etc., prepared by the Committee's Architect, Mr. Wilfred H. Robinson, M.S.A., may be inspected upon application to the School Correspondent, Mr. F. J. Argles, 12, Mill-street, Maidstone, Kent, or at the offices of the Committee. Mr. Frns. W. Crook, Secretary, Caxton House, Westminster, S.W.

AUGUST 12.—**Liskeard.**—WATER TANK.—Liskeard R.D.C. invite tenders for a concrete water tank to be built on Polruan Beach; capacity 6,000 gallons. Mr. E. Mallett, Pendruffle, Duloe, R.S.O.

AUGUST 12.—**Newport.**—STREET WORKS.—The Corporation invite tenders for street improvements in Vine-place and Albany-street. Specifications to be seen at the Borough Engineer's Offices, Town Hall, where bills of quantities may be obtained upon production of the Borough Treasurer's receipt for 10s. 6d. in respect of each set.

AUGUST 14.—**Bingley.**—ASPHALTING.—West Riding C.C. Education Committee invite tenders for the asphalting of the playgrounds at Myrtle Park

Provided School, Bingley. Plans may be seen, and specifications obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l.* is required. Cheques, etc., must be made payable to the West Riding Treasurer, and sent to him direct, at the County Hall, Wakefield.

AUGUST 14.—**Leeds.**—ROAD WORKS.—The Leeds C.C. invite tenders for the macadamising and flagging of Kimberley-road. Forms of tender, etc., may be obtained, and plans, etc., inspected, on application at the Highways Office, 155, Kirkstall-road.

AUGUST 15.—**Hindley.**—FLAGGING.—The U.D.C. of Hindley Education Committee invite tenders for flagging parts of the playgrounds and making an ashpit at Argyle-street Council School. Specifications can be obtained on application from Mr. James R. Booth, Secretary of Education.

AUGUST 15. — **Thornton-le-Moor.** — LAYING-OUT FILTRATION AREA.—Thirsk R.D.C. invite tenders for laying-out present filtration area at Thornton-le-Moor Sewage Disposal Works. The drawings, etc., may be seen at office of Mr. William Swarbreck, Clerk to the R.D.C., Finkle-street, Thirsk. Copies of schedule, etc., may be obtained from the engineers, Messrs. Fairbank & Son, C.E., Lendal-chambers, York, on deposit of 1*l.* 1s.

AUGUST 15. — **Winchester.** — WIDENING. — Winchester R.D.C. invite tenders for widening the road and fixing continuous iron fence at Middle-street, in the Parish of Stoke Park. Plan, etc., may be seen, and form of tender obtained, at the Surveyor's Office, 2, St. James's-street, Winchester.

AUGUST 17.—**Chorley.**—MAIN OUTFALL SEWER.—The Chorley Corporation invite tenders for labour, plant, carting, etc. Specification, etc., may be had on application to the Borough Surveyor, Town Hall, Chorley.

AUGUST 17.— **Hastings.**—SEWERS.—The Corporation invite tenders for the laying of sewers in Waldegrave and Cornwall's streets, and at the rear of Queen's-road, Hastings. Drawing etc., may be seen, and form of tender obtained, at the office of the Borough Engineer, Mr. P. H. Palmer, M.Inst.C.E., Town Hall, Hastings.

AUGUST 17. — **Ilford.** — STREET WORKS. — Ilford U.D.C. invite tenders for levelling, metalling, paving, flagging, channelling, and making good Sunnyside-road (part of) from Grange-road. Plans, etc., may be seen, and forms of tender obtained (on payment of a deposit of 2*l.* 2s.), upon application to Mr. H. Shaw, M.Inst.C.E., Engineer and Surveyor to the Council, Town Hall, Ilford.

AUGUST 17. — **Leigh-on-Sea.** — MAKING-UP.—The U.D.C. of Leigh-on-Sea invite tenders for making-up of Pall-mall (573 lin. yds. or thereabouts), Canons-leigh-crescent (181 lin. yds. or thereabouts), and for the sewering of Leigh Hall-road (part of), Oakleigh Park-drive (part of), also for the construction of a public urinal to be situate at the Bell Wharf. Plans, etc., may be seen, and copies of quantities, etc., obtained, at the office of Mr. J. W. Liversedge, A.M.Inst.C.E., Engineer and Surveyor to the Council, Council Offices, Leigh-on-Sea, on payment of a deposit of 2*l.* for each set of quantities.

AUGUST 17.—**Tiverton.**—RESERVOIR, ETC.—Construction of a reservoir, with earthen and clay puddle dam, on the Rackenford Manor Estate, for Mr. F. J. Coleridge Boles. Plans, etc., may be seen, and all information obtained, from Mr. W. F. Siddalls, civil engineer, Drumore, Tiverton.

AUGUST 17.—**Wemyss, etc.**—PIPES.—The Joint Water Committee of Management of the water supply for the special water district of Wemyss and the special water district of Buckhaven, Methil, and Innerleven, invite tenders for providing and delivering at Markinch, Cameron Bridge, Wemyss Castle, and Methil stations about 1,184 tons dry sand cast-iron pipes, 12, 10, 9, 8, and 6 in. diameter, and special castings. Copies of the specification, etc., may be obtained at the office of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72A, George-street, Edinburgh, on payment of 1*l.*

AUGUST 19. — **Melton Mowbray.** — DRAINAGE.—Melton Mowbray U.D.C. invite tenders for the construction of an engine-house and suction tank, together with boilers, engines, centrifugal pumps, and about 900 yds. of 12-in. cast-iron rising main. Purification works, consisting of four settling tanks, etc. Plans, etc., prepared by Messrs. John Taylor, Sons, & Santo Crimp, civil engineers, copies of which may be obtained from their offices at Caxton House, Westminster, upon payment of 5*l.* (cheque only). The plans may also be inspected at the office of Mr. Edmund Jeeves, Surveyor to the Council, Nottingham-street, Melton Mowbray.

AUGUST 20. — **Innerleithen.** — TRAQUAIR ROAD SEWERS.—The T.C. require estimates for laying about 1,400 yds. of 4-in., 5-in., 6-in., 9-in., 15-in., and 18-in. sewers to replace existing ones. Schedules from Mr. James Thomson, C.E., 22, Rutland-square, Edinburgh, on payment of 1*l.*

AUGUST 22. — **Castlewellan.**—WATER WORKS.—The Downpatrick R.D.C. invite tenders for the construction of a complete system of waterworks for Castlewellan. Plans, etc., may be seen, and a copy of the specification, etc., can be obtained, upon payment of 1*l.* 1s. (which will not be returned), at the office of the engineers, Mr. J. M'Aleenan, C.E., Castlewellan, or Messrs. Swiney & Croasdaile, MM.Inst.C.E., Avenue-chambers, Belfast.

AUGUST 24.—**Galashiels.**—SEWERS, ETC.—The T.C. of the Burgh of Galashiels invite tenders for sewer works (three contracts). Copies of the general conditions, etc., upon application to Mr. W. A. Baird Laing, A.M.Inst.C.E., at the offices of Messrs. Kyle, Dennison, & Laing, C.E., 175, Hope-street, Glasgow, or 34, Queen-street, Edinburgh, on payment of the sum of 5*l.* 5s. in the case of contract No. 1, and 3*l.* 3s. in the case of each of contracts Nos. 2 and 3. The plans, etc., may be inspected and other particulars obtained, at Mr. Laing's Glasgow office.

AUGUST 24.—**Leeds.**—HOPE-STREET IMPROVEMENT.—The Unhealthy Areas Committee invite tenders for the whole of the trades in connexion with the above. The drawings, etc., may be seen at the City Engineer's Office, Municipal Buildings, Leeds, and a bill of quantities, etc., may be obtained on deposit of 3*l.* 3s.

AUGUST 24.—**Tring.**—SEWERAGE.—Tring U.D.C. invite tenders for the execution of all work involved by the connexion of house drains to the new system of sewerage in the Town of Tring. Specifications, etc., may be obtained at the offices of the engineers, Messrs. Willcox & Raikes, of 63, Temple-row, Birmingham, on payment of a deposit of 2*l.* 2s.

AUGUST 27.—**Colton.**—WATER SUPPLY, TRENT VALLEY STATION, RUGELEY.—Lichfield R.D.C. invite tenders for the provision, laying, and jointing of about 1,020 yds. of cast-iron pipes. Drawings may be seen, and copies of the specification, etc., obtained, at the office of Mr. W. E. Rogers, Anson-street, Rugeley (the Council's Engineer), on payment of a deposit of 1*l.* 1s.

AUGUST 27.—**Burbiton.**—DRAINAGE.—The U.D.C. of Surbiton invite tenders for the construction of main drainage works. The drawings, etc., may be inspected at the offices of the Engineer, Mr. C. Nicholson Lailey, M.Inst.C.E., 53, Victoria-street, Westminster.

AUGUST 31. — **Chapelhall.**—PURIFICATION WORKS.—The District Committee of the Middle Ward of the County of Lanark invite tenders for the construction of sewage purification works and intercepting and outfall sewers near Sauchenbog Bridge, Chapelhall. Plans may be seen, and copies of the specification, etc., obtained, at the office of Mr. W. L. Douglas, M.Inst.C.E., District Engineer, District Offices, Hamilton, on payment of 1*l.*

✱ SEPTEMBER 14. — **Streatham.** — MAKING-UP AND PAVING.—The Wandsworth B.C. invite tenders for making-up and paving new streets. See advertisement in this issue for further particulars.

STONE, MATERIALS, AND STORES.

AUGUST 10.—**Blything.**—GRANITE.—Supply and delivery at Wenhaston Station, Southwold Railway, of 100 tons, or upwards, of granite blocks. Mr. Harold A. Mullens, Clerk to the Guardians, Clerk's Offices, Union Workhouse, Bulcamp, Halesworth

AUGUST 13.—**Portsmouth.**—MATERIALS.—The Corporation invite tenders for the supply of Purbeck paving, gravel, sand, granite, etc. The specification and printed form of tender may be obtained at the Town Clerk's Office, Town Hall.

AUGUST 18. — **Heywood.** — MATERIALS. — The Gas Committee invite tenders for the supply of tubes and fittings, sulphuric acid, and also for the purchase of surplus tar. Specification, etc., may be obtained upon application to Mr. W. Whatmough, Gas Manager.

AUGUST 22. — **Nantyglo and Blaina.** — ROAD MATERIALS.—Nantyglo and Blaina U.D.C. invite tenders for the supply of road metal. Samples to be sent to Mr. W. J. Davies, Blaina, the Council's Surveyor.

SEPTEMBER 7. — **Bedford.** — BROKEN GRANITE. — The Corporation of Bedford invite tenders for the supply of about 2,000 tons of broken granite for road-making. Forms of tender, etc., can be obtained on application. Mr. Hedley Baxter, Town Clerk, Town Hall, Bedford.

NO DATE. — **Hull.** — STORES.—Humber Conservancy Board invite tenders for stores. Full particulars may be obtained from Mr. A. E. Butterfield, C.E., Engineer to the Board, Conservancy Offices, Whitefriargate, Hull.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*TEACHER FOR QUANTITY SURVEYING AND ESTIMATING	Battersea Polytechnic	See advertisement in this issue.....	No date

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*TIMBER AND IRON BUILDINGS, HOUNSLOW—On the Premises	Woods	Aug. 11
*RESIDENTIAL PROPERTY, NEAR WOKING—At the Mart.....	Walton & Lee.....	Sept. 15

PATENTS.—*Continued from page* 171.

simultaneously drawn in opposite directions over the land to be excavated; or the substitution of an anchor carriage for one of the engines, such carriage carrying a drum or drums over which the rope passes from one of the drums with which the other engine is provided, and then returns to the other drum carried thereby; or the substitution of a loosening or breaking-up tool for either of the pair of excavating scoops, buckets, or scrapers with which the hauling rope or ropes are provided. The scoop, bucket, or scraper consists in a frame mounted on side runners and open at the bottom, while the top and upper part of the front are fitted with a cover, and the rear with an inclined cutting blade projecting below such frame; the rear of the scoop, bucket, or scraper being fitted with a lever pivoted to the bottom of the frame thereof, and carrying a roller or wheel travelling on the ground; the upper end of said lever being connected by a rope to a hauling rope or cable at a point in advance of said scoop, bucket, or scraper in the direction of its backward travel for the purpose of raising the rear thereof and holding its cutting blade clear of the ground during the latter movement, and the employment of a rope for connecting the lever carrying the travelling wheel with the connexion between the forward end of such scoop, bucket, or scraper and the hauling rope; and the scoop, bucket, or scraper may have a rear cutting blade fitted with loosening or breaking up tooth or teeth which project below the cutting edge of such blade.

17,494 of 1907.—C. E. HEATCOTE: *Jointing of Sanitary Pipes and the like.*

This relates to the jointing of sanitary and other pipes, in which the meeting faces of the parts of the joint are lined with a composition capable of being melted at ordinary low temperature, and consists in the employment of a fuse for melting such composition at the meeting faces thereof and sealing the joint.

25,075 of 1907.—R. D'OLIVIER MANSAN: *Manufacture from Pitch and other Substances of Material Suitable for Making Paving, Roads, Walls, Pipes, and for other purposes.*

This relates to the manufacture from pitch and other substances of material suitable for use in making paving, roads, sea-walls, pipes, mouldings, and for other purposes, and consists in adding silicate of alumina and sulphate of calcium together with manganese dioxide to heated and melted pitch, and continuing the heating to produce material having the desired resisting quality, and suitable for use as a basis material in the manufacture of water-resisting mortar, concrete, or the like. As an example, from about 60 to 65 per cent of powdered dry clay may be added to and thoroughly incorporated with from about 30 to 35 per cent. of coal-tar pitch in a heated and melted condition, from about 4 to 5 per cent. of plaster being then thoroughly incorporated with the mixture, and manganese dioxide being afterwards thoroughly incorporated in amount varying up to 10 per cent., according to the quality of the product desired with the heated mass, the heating being continued until the product attains the desired quality. The product or mass thus obtained can, whilst still hot, be then mixed according to circumstances with sand, gravel, pebbles, or other substances in various proportions to form mortar or concrete.

4,980 of 1908.—C. DOWSEN: *Ball and Socket Joint for Steam Pipes, Gas Pipes, Water Pipes, or Vacuum Pipes.*

This relates to a ball and socket joint, and consists in the use of an annular keep-plate having a projection fitting into the outer case of the joint, and forming a continuous line with the spherical inner case of the joint, and having a grove or recess formed in the inner

side of the projection for the reception of suitable packing material, and having several perforations leading from the outer side of the keep-plate into the groove or recess, together with an annular gland ring having several horns or projections on its inner side fitting into the perforations of the keep-plate, and the horns or projections being long enough to reach through into the packing groove or recess and compress the packing to the desired amount.

10,180 of 1908.—H. C. WERNER: *Reinforced Concrete, Ribbed Floors, and Roofs, and Members for Use in the Construction thereof.*

This relates to a reinforced concrete ribbed floor or roof, in which the compression bodies of the ribs or boarding members are wholly formed of concrete *in situ* between trough or box-shaped flanged reinforced concrete members bridging the span, and serving as centring, and made prior to erection, and having metal tension members of the floor or roof embedded in flanges: the said construction being such that the whole forms an integral structure.

11,582 of 1908.—G. W. WAGNER: *Facing Bricks Divisible into Halves.*

This relates to a double facing brick specialised by the provision of longitudinal grooves or recesses on the outside, and having passing through its interior double L-shaped perforations continuing close to the outside grooves, and enabling the brick to be easily divided into two uniform halves for the purpose of setting it.

24,783 of 1907.—G. W. HARRIS: *Instruments for Levelling.*

This relates to a combined sighting level and clinometer of the gravity type composed of triangularly-disposed folding members, and is constructed of a metal bar of convenient size attached at its centre by a pin or rivet to another bar at right angles, the latter having a hole at the other end. On suspending this arrangement like an inverted T on a pin placed in the hole and attached to a third bar, the lower bar being properly balanced while hung truly horizontally, two pins are fitted on one side of this bar, one near each end at the same distance from the bottom edge, and by holding this instrument in front of the eye and sighting through the two pins a distant point will be found that will be on a level with the eye of the observer. The two bars are interconnected rigidly, but the pin or rivet acts as a pivot, so that the bars are capable of moving in relation to each other, and of being folded up, and in order to secure them at right angles to each other for use two flat bars or links are fitted attached to the vertical bar near its upper end by a pin acting as a pivot, and the lower end of each bar or link is furnished with a small pin or dowel fitting into a hole in the bottom bar; these holes are so placed that when the pins are in them the horizontal and vertical bars are kept square with each other, the links are arranged so that they will fold together, the horizontal and vertical bars being also folded longitudinally with the links so that the whole instrument when folded occupies little space.

289 of 1908.—G. PAYNE: *Imitation Marble and Granite.*

This relates to imitation marble or granite blocks having a polished surface, and consists in employing petrefite or other similar magnesite cement in its natural condition—that is to say, without the addition of colouring matter; and a thin layer of it is spread upon very smooth and polished surface, such as glass. Any suitable liquid colours are then immediately applied by a brush to the back of the magnesite cement, and pressure is applied to the whole surface. The result is that the colours pass into the cement and are seen through the polished surface of the magnesite cement when the block has been removed from the glass by twisting. Any usual packing may be employed.

4,566 of 1908.—A. A. PAULY: *Apparatus for Forming Building Blocks and Artificial Stone from Plastic Material.*

This relates to an apparatus for forming building blocks and artificial stone from plastic material, consisting of supports, moulding frames arranged upon said supports, doors normally closing said frames, ejectors located beneath said supports and extending into said frames, steam pipes connecting with said ejectors and with said frames, and means for controlling the operation of said ejectors; it comprising two parallel-spaced platforms with trackway between and below same, a plurality of moulding frames supported on said platforms, steam supply line pipes connecting said steam supply line with each of said moulding frames, and a block, ejecting means also operated by steam from said steam supply line for ejecting blocks from said mould frames, the block ejecting means comprising a cylinder located beneath a platform having a movable head, plungers carried by said head and projecting through the platform into the mould frame, a piston in said cylinder for engaging said movable head, connexions between the cylinder and the steam supply line, and means operated from the platform for controlling passage of steam from the steam supply line to said cylinder.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 15.—By GILLOWS (at Manchester).

Windermere, Lancs.—The Calgarth Park Estate (a portion), 156¼ acres, f., p.	£15,000
Maine-rd., building land, 21 acres, f.	3,350
Lake Windermere, Lancs.—"Lady Holme," 2 r. 14 p., freehold island	380
Brackenthwaite and Wormdale, Lancs.—Two allotments, 27¼ acres, f.	106

July 21.—ALFRED J. BURROWS (at Ashford).

Bethersden, Kent.—Forge Corner, 6¼ acres, f., p.	205
High Halden, Kent.—Sandhurst Field, 5 acres, f., p.	115

July 22.—By C. W. PROVIS & SONS (at Manchester).

Manchester, Lancs.—27, Piccadilly (s.), f., y.r. 500*l.*	10,100
Handford, Cheshire.—Freehold Farm, 21 a. 0 r. 35 p., y.r. 33*l.*	2,850
Two freehold chief rents of 18*l.* 1s. and 7*l.*	575
Sagar-rd., freehold chief rent 6*l.* 8s.	158
Sagar-rd., freehold chief rent 7*l.* 10s.	165

July 23.—By G. E. SWORDER & SONS (at Bishop's Stortford).

Takeley, Essex.—Old House Farm, 200 acres, f. p.	3,450
Wimbish, Essex.—Higham's Farm, 131 a. 1 r. 6 p., f., y.r. 75*l.*	1,395
Wimbish and Thaxted, Essex.—Swallow's Farm, 38 a. 1 r. 30 p., f., y.r. 55*l.*	630
Oakley, Essex.—Oakley Hall Farm, 400 acres, f., y.r. 220*l.*	7,135
Two cottages, f., w.r. 2*l.* 10s.	250
Accommodation land, 12 a. 2 r. 30 p., f., y.r. 5*l.*	250
Clavering, Essex.—XVIth century house, with adjoining grocer's shop, etc., f., p.	1,300

By C. M. STANFORD (at Colchester).

Thorpe-le-Soken, Essex.—The Hill Farm, 62 acres, f., y.r. 57*l.*	1,100

July 24.—By CHARLES BOARDMAN (at Haverhill).

Birdbrook, Essex.—Three farms and accommodation fields, 291¼ acres, f., p.	3,415

By J. HANNAFORD & SON (at Exeter).

Chawleigh, Devon.—Chawleigh Week Estate, 249 a. 1 r. 15 p., f., y. and e.r. 216*l.*	5,000
Chulmleigh, Devon.—Holding, 9 a. 0 r. 6 p., f., y.r. 19*l.*	350
Chawleigh, Devon.—Moor Town and Woodhouse Estates, 248¼ acres, f., y. and e.r. 176*l.*	4,220
Barton Estate, 266 a. 3 r. 29 p., f., y. and e.r. 170*l.*	5,170
Chawleigh and Chulmleigh.—Holding and Stone Barton Estate, 514¼ acres, f., y. and e.r. 262*l.*	5,650
Cheldon, etc., Devon.—Mounticombe Estate and plantations, 230 acres, f., y.r. 74*l.*	2,138
Coleridge, etc., Devon.—Park Estate, etc., 289 acres, f., y. and e.r. 181*l.*	4,373
Downland, Devon.—Downland Moor, 167 acres, f., y.r. 16*l.*	500
East Wallington, Devon.—Holding, plantation, etc., 157¼ acres, f., y.r. 107*l.*	3,002
Chawleigh, Devon.—Arable and pasture lands, cottages, etc., 188 acres, f., y.r. 373*l.*	9,185

July 27.—By ELLIOTT, SON, & BOYTON.

Bayswater.—Craven-hill, f.g.r. 5*l.*, reversion in 25¼ yrs.	990
Craven-hill, f.g.r. 35*l.*, reversion in 25¼ yrs.	1,750
Craven-hill, f.g.r. 5*l.*, reversion in 25¼ yrs.	1,500
Craven-hill, f.g.r. 35*l.*, reversion in 25¼ yrs.	1,900
Craven-hill, f.g.r. 5*l.*, reversion in 25¼ yrs.	1,450
Craven-hill, f.g.r. 40*l.*, reversion in 44¼ yrs.	1,160
Craven-hill-gdns., f.g.r. 10*l.*, reversion in 32 yrs.	560
Clapham.—28, 29, and 29A, South-side, with stabling, f., p.	1,750

By STIMSON & SONS.

Forest Hill.—95, Dartmouth-rd. (s.), u.t. 44 yrs., g.r. 2*l.* 10s., y.r. 40*l.*	300
New Cross.—1, Edric-rd., u.t. 54 yrs., g.r. 4*l.*, w.r. 35*l.* 2s.	325
Kentish Town.—22, Leighton-gr., u.t. 32 yrs., g.r. 6*l.* 6s., e.r. 72*l.*	270
New Cross.—11, New Cross-rd., u.t. 16 yrs., g.r. 3s., e.r. 40*l.*	160
Camberwell.—Waterloo-st., f.g. rents 28*l.* 10s., reversion in 72 yrs.	610
Walworth.—Bronti-pl., f.g.r. 6*l.*, reversion in 77¼ yrs.	130
Shortlands, Kent.—Shortlands-villas, f.g.r. 14*l.*, reversion in 71 yrs.	315
Chislehurst, Kent.—Willow Grove-villas, f.g.r. 9*l.*, reversion in 91 yrs.	190
Holloway.—Warlters-rd., f.g.r. 35*l.*, u.t. 22¼ yrs., g.r. nil	330
Hovay-st., f.g.r. 30*l.*, u.t. 30¼ yrs., g.r. 3*l.* 10s.	280
Poplar.—Willis-st., f.g.r. 47*l.* 10s., u.t. 33¼ yrs., g.r. 24*l.* 8s.	235
Peckham Rye.—Hichisson-rd., f.g.r. 36*l.* 15s., u.t. 80 yrs., g.r. 12*l.*	405
Lee, Kent.—Manor-pk., f.g. rents 49*l.* 7s., u.t. 51¼ yrs., g.r. 7*l.*	655
Manor-pk., f.g.r. 10*l.* 10s., u.t. 51¼ yrs., g.r. 10s.	150
Camden Town.—Great College-st., f.g.r. 26*l.*, u.t. 40¼ yrs., g.r. 7*l.* 10s.	265
Highbury.—Highbury-quadrant, f.g. rents 21*l.*, u.t. 49¼ yrs., g.r. 4*l.*	295
Mildmay Park.—St. Jude-st., f.g. rents 28*l.* 19s. 10d., u.t. 33¼ yrs., g.r. 12*l.* 19s. 10d.	230
Paddington.—Upper Westbourne-ter., f.g.r. 32*l.*, u.t. 40¼ yrs., g.r. 16*l.*	£235
Warwick-cres., f.g. rents 28*l.* 7s., u.t. 34¼ yrs., g.r. 3*l.* 18s. 4d.	325
Delamere-ter., f.g.r. 12*l.* 12s., u.t. 40¼ yrs., g.r. 2*l.*	150
Hackney.—Amhurst-rd., f.g.r. 10*l.* 10s., u.t. 57¼ yrs., g.r. 1d.	170
Richmond.—Pyrland-rd., f.g.r. 9*l.* 10s., u.t. 52¼ yrs., g.r. 10s.	155
Chelsea.—Fereshaw-rd., f.g. rents 17*l.* 9s., u.t. 45¼ yrs., g.r. 2*l.*	255
Stoke Newington.—Shakespeare-rd., f.g.r. 26*l.*, u.t. 51 yrs., g.r. 18*l.*	120
Norwood.—Belvedere-rd., f.g.r. 21*l.*, u.t. 44 yrs., g.r. 14*l.* 10s.	105
Kentish Town.—168, Leighton-rd., u.t. 36¼ yrs., g.r. 5*l.*, w.r. 46*l.* 16s.	210

By DANIEL SMITH, SON, & OAKLEY.

Willesden.—74 and 76, High-rd. (s.), f., y.r. 185*l.*	1,950

July 28.—By DEBENHAM, TEWSON, RICHARDSON, & CO.

Englefield Green, Surrey.—The Nook, 3 r. 14 p., f., y.r. 48*l.*	1,210

By FAREBROTHER, ELLIS, & CO.

Wandsworth.—West-hill, Suffolk Hall and stabling, area 12,800ft., u.t. 89 yrs., g.r. 100*l.*, p.	5,000

By FISHER, STANHOPE, & CO.

Stoke Newington.—68, 70, and 72, Bayston-rd., u.t. 68 yrs., g.r. 18*l.* 16s., y. and e.r. 102*l.*	1,000
Greenwich.—Ashburham-gr., f.g. rents 18*l.* 16s., u.t. 39 yrs., g.r. 16s.	285
Stamford Hill.—6, Cranwich-rd., u.t. 76 yrs., g.r. 7*l.* 10s., e.r. 46*l.*	385
Stoke Newington.—14, Chardmore-rd., u.t. 80 yrs., g.r. 7*l.*, e.r. 48*l.*	450

By HAMPTON & SONS.

Pimlico.—42, St. George's-rd., u.t. 21 yrs., g.r. 8*l.*, p.	345
Icklesham, Sussex.—Two cottages, 1 acre, f., p.	235
Accommodation land, 7 acres, f., p.	600
Winchelsea, Sussex.—Mill-rd., cottage, garden ground, f., w.r. 26*l.*	500
Icklesham, Sussex.—The Friars Estate, 80 a. 2 r. 9 p., f., p.	13,000
Accommodation land, 4 acres, f., p.	470
The Old Workhouse, f., w.r. 16*l.* 18s.	300
Winchelsea, Sussex.—Sea View House, 1 r. 35 p., f., y.r. 50*l.*	2,000
Cottage, f., w.r. 7*l.* 16s.	520
Accommodation and pasture lands, 8 a. 0 r. 29 p., f., p.	450
Cook's-st., "Barrack Square," twelve cottages, one moiety of the freehold w.r. 89*l.* 18s.	500

By PERCIVAL HODSON.

Battersea.—11, 13, and 15, 19 to 25, Abyssinia-rd., f., w.r. 291*l.* 4s.	1,450
Kennington.—202, Upper Kennington-la. (s.), f., y.r. 60*l.*	550
Maidenhead.—Bray-rd., f.g.r. 15*l.* 15s., reversion in 86 yrs.	350

By HOLCOMBE, BETTS, & WEST.

Hackney.—Blanchard-rd., f.g. rents 20*l.*, reversion in 39 yrs.	490
New-st., f.g.r. 30*l.*, reversion in 39 yrs.	710

By S. & G. KINGSTON (at Spalding).

Pinchbeck, Lincoln.—Farmhouse, 138 a. 1 r. 7 p., f., p.	5,600
Arable land, 8¼ acres, f., p.	240
Cowbit, Lincoln.—Two parcels of land, 16¼ acres, f., p.	953

By GILLART & SONS (at Machynlleth).

Machynlleth, Montgomery.—Thirty-two houses, fifteen cottages, accommodation lands, etc., 18¼ acres, f., y.r. 447*l.*	7,427
Maengwyn-st., "Bank Place," four houses, f., y.r. 43*l.*	2,493
Maengwyn-st., "The Skinners' Arms" Inn p.h., f., y.r. 60*l.*	800
Penrallt-st., two s. and five cottages, f., y.r. 122*l.*	1,908
4 to 20 (even), Brickfield-ter., f., y.r. 54*l.*	505
Accommodation lands, etc., 17 a. 2 r. 14 p., f., y.r. 52*l.*	1,275
Uwchygarreg, Montgomery.—Pandybach Farm and accommodation lands, 78 acres, f., y.r. 66*l.*	1,683
Penegoes, etc., Montgomery.—Holding "Plas Forge," and "Pandy" mill, 17 a. 3 r. 2 p., y.r. 35*l.*	930
Maesllwyni Farm, 81 a. 0 r. 30 p., f., y.r. 70*l.*	1,600
Mallwyd, Merioneth.—Talymeirin Farm, 118 a. 1 r. 2 p., f., y.r. 37*l.*	900

July 29.—DAVID BURNETT, SON, & BADDELEY.

Hoxton.—80 to 96 (even), Shepherdess-walk (s.), u.t. 34 yrs., g.r. 54*l.*, y.r. 528*l.*	4,720
Camden Town.—27, Camden-st. (s.), u.t. 21 yrs., g.r. 20*l.*, y.r. 40*l.*	100
Twickenham.—Belmont-rd., f.g.r. 10*l.*, reversion in 47 yrs.	240

By H. DONALDSON & SON.

Stoke Newington.—88, Milton-rd., u.t. 44 yrs., g.r. 3*l.* 10s., e.r. 36*l.*	200

By DYER, SON & HILTON.

Blackheath.—63, Kidbrook Pk.-rd., u.t. 57 yrs., g.r. 12*l.*, e.r. 85*l.*	305

By GREEN & SON.

Hammersmith.—Montgomery-yard and Lurgan House, area 9,200 ft., f., y.r. 235*l.*	2,750

By DOUGLAS YOUNG & CO.

Walworth.—80 and 82, Mann-st., u.t. 43 yrs., g.r. 9*l.*, e.r. 83*l.* 12s.	200

By HEPPER & SONS (at Harrogate).

Clint, Yorks.—Burnt Yates, 2 a. 2 r. 17 p., e., y.r. 18*l.*	365
High and Low Bishopside, Yorks.—"Dredging Box" Holding, 7 a. 0 r. 12 p., f., y.r. 25*l.*	500
Low Fold and Strawberry Castle, 3 a. 1 r. 16 p., f., y.r. 58*l.*	1,360
Byrnl House Farm, 25½ acres, f., y.r. 76*l.*	1,650
Wilsill, Yorks.—Four cottages, f., y.r. 22*l.*	260
Bewerley, Yorks.—Bewerley Moor Allotment, 28¼ acres, f., y.r. 8*l.*	250
High and Low Bishopside, Yorks.—Lady Well Allotment, 266 a. 3 r. 36 p., f., y.r. 33*l.*	2,500

Fountains Earth, Yorks.—Two allotments, Lofthouse Level and Baxton Gill, 122¼ acres, f., y.r. 56*l.* £2,500
Stone-Beck-Up, Yorks.—Moor-la., allotment, etc., 92 acres, u.t. 2,710 yrs., g.r. 18*s.*, y.r. 55*l.* 2,500

By G. B. HILLIARD & SON (at Stock).

Stock, Essex.—Mill-rd., two cottages, f., e.r. 15*l.* 155
Buttsbury, Essex.—Messuage and blacksmith's shop, c., y.r. 23*l.* 243

July 30.—By BUCKLAND & SONS.

Datchet, Bucks.—1 and 2, Elmside-villas, f., y.r. 32*l.* 0*s.* 500

By JOHN H. BULMER.

Rotherhithe.—44, Culling-st., u.t. 56 yrs., g.r. 5*l.* 5*s.*, e.r. 34*l.* 380
Deptford.—111 and 113, Evelyn-st., u.t. 66 yrs., g.r. 11*l.*, w.r. 93*l.* 12*s.* 755
2, Hoopwick-st., u.t. 60 yrs., g.r. 4*l.* 15*s.*, w.r. 41*l.* 12*s.* 350

By NEWBON, SHEPHARD, & EDWARDS.

Hoxton.—40, Penn-st., u.t. 28 yrs., g.r. 5*s.* 10*s.*, y.r. 33*l.* 165
Islington.—45, Essex-rd., u.t. 37 yrs., g.r. 6*l.* 10*s.*, e.r. 70*l.* 250
Hackney.—19, Hassard-st., f., y.r. 28*l.* 380
Walthamstow.—Gloucester-rd., three plots of building land, f. 120

By STIMSON & SONS.

Hammersmith.—51 and 53, Gastlen-rd., u.t. 82 yrs., g.r. 5*l.*, w.r. 72*l.* 10*s.* 370
West Kensington.—North End-rd., l.g.r. 105*l.*, u.t. 12 yrs., g.r. 37*l.* 10*s.* 400
Dulwich.—25, Northcross-rd. (s.), u.t. 65 yrs., g.r. 6*l.* 6*s.*, y.r. 37*l.* 260
7, Rosebery-rd., u.t. 73 yrs., g.r. 6*l.* 10*s.*, e.r. 38*l.* 300
Camberwell.—24, Scarr-st., f., e.r. 46*l.* 16*s.* 325
Peckham.—33, 35, and 37, Kincaid-rd., f., w.r. 93*l.* 12*s.* 1,020
1, Grenard-rd. (s.), u.t. 65 yrs., g.r. 6*l.*, y.r. 38*l.* 260
37, 39, and 41, Grenard-rd., u.t. 56¼ yrs., g.r. 13*l.*, w.r. 109*l.* 4*s.* 530
Old Kent-road.—79 to 89 (odd), Smyrks-rd., u.t. 13 yrs., g.r. 21*l.*, w.r. 231*l.* 8*s.* 515

By WARE & CO.

Strand.—No. 60 (s.), u.t. 7 yrs., at a rental of 300*l.*, y.r. 500*l.* 800

By VENTOM, BULL, & COOPER.

Ruislip.—High-st., area 653 ft., freehold land.. 420

By WISCH & SONS (at Maidstone).

Chart Sutton, Kent.—Cheney's-ct. Farm, 74 a. 0 r. 25 p. f., p. 1,720
Boughton Monchelsea, Kent.—Rabbits' Cross Farm, 21 a. 2 r. 10 p., f., p. 861
Staplehurst, Kent.—Fur field, two cottages, 4 a. 0 r. 30 p., f., w.r. 20*l.* 3*s.* 4*d.* 300
The Robinson Land, 9 a. 2 r. 20 p., f., y.r. 13*l.* 260
Marden-rd., twenty-four cottages, f., w.r. 200*l.* 5*s.* 4*d.* 2,500
Little Spills Hill Farm, 86 a. 0 r. 22 p., f., y.r. 93*l.* 1,545
Two houses, cottage, and land, 4 a. 1 r. 22 p., f., y.r. 62*l.* 17*s.* 1,197

By FAREBROTHER, ELLIS, & Co. (at Birmingham).

Admington, Gloucester.—Lark Stone Farm, 272½ acres, f., y.r. 250*l.* 5,550
Five cottages, 3½ acres, f., y.r. 21*l.* 13*s.* 330
Quinton, Gloucester.—Lower Meon, holding 47½ acres, f., y.r. 95*l.* 6*s.* 6*d.* 1,860
Lower Meon Farm, 108½ acres, f., y.r. 168*l.* 10*s.* 3,302
Ivy House Farm, 69½ acres, f., y.r. 87*l.* 10*s.* 1,755
Accommodation land, 10 acres, f. 520

July 31.—By CARTWRIGHT & ETCHES.

Pimlico.—33, Bessborough-gdns., u.t. 25 yrs., g.r. 9*l.*, e.r. 60*l.* 290

By LINNETT & LANE.

Willesden.—Church-rd., freehold plot 120

By P. S. RIEBOLD.

Harringay.—27 and 29, Warwick-gdns., u.t. 81 yrs., g.r. 12*l.* 12*s.*, w.r. 83*l.* 4*s.* 445
Regent's Park.—47, Osnaburg-st. (s.), u.t. 15¼ yrs., g.r. 10*l.*, y.r. 55*l.* 185

By WESTON & SONS.

Battersea.—151 and 153, Stewarts-rd., u.t. 56 yrs., g.r. 10*l.*, w.r. 83*l.* 4*s.* 380
Stockwell.—138, Dalyell-rd., u.t. 56 yrs., g.r. 9*l.*, y.r. 42*l.* 265
Camberwell.—47, Mosedale-st., u.t. 48 yrs., g.r. 4*l.* 4*s.*, w.r. 33*l.* 16*s.* 155

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.	
Best Stocks	1	8	0	per 1000 alongside, in river.
Picked Stocks for Facings	2	10	0	delivered.
Flettons	1	7	0	at railway depôt.
Best Fareham Red	3	12	0	
Best Red Pressed Ruabon Facing..	5	0	0	
Best Blue Pressed Staffordshire ...	3	15	0	
Do. Bullnose	4	0	0	
Best Stourbridge Fire Bricks	3	14	0	

BRICKS, &c. (*continued*).

GLAZED BRICKS.

	£	s.	d.	
Best White and Ivory Glazed Stretchers	10	7	6	delivered at railway depot.
Headers	9	17	6	" " "
Quoins, Bullnose, and Flats	13	17	6	" " "
Double Stretchers	15	17	6	" " "
Double Headers...	12	17	6	" " "
One Side and two Ends	16	17	6	" " "
Two Sides and one End	17	17	6	" " "
Splays, Chamferred, Squints..	15	10	0	" " "
Best Dipped Salt Glazed Stretchers	10	7	6	" " "
Headers	9	17	6	" " "
Quoins, Bullnose, and Flats	13	17	6	" " "
Double Stretchers	15	17	6	" " "
Double Headers ...	12	17	6	" " "
One Side and two Ends	16	17	6	" " "
Two Sides and one End	17	17	6	" " "
Splays, Chamferred, Squints..	15	10	0	" " "
Second Quality White and Dipped Salt Glazed	1	5	0	per 1000 less than best.

	£	s.	d.	
Thames and Pit Sand			6	6 per yard, delivered.
Thames Ballast			5	0 " "
Best Portland Cement			28	0 per ton, "
Best Ground Blue Lias Lime			19	0 " "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11*s.* 6*d.* per yard, delivered.
Stourbridge Fireclay in sacks 27*s.* 0*d.* per ton at rly. dpt.

STONE.

	s.	d.	
BATH STONE—delivered on road waggons, Paddington Depôt.....	1	6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt.....	1	8½	" "
PORTLAND STONE (20 ft. average)—			
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf...	2	1	" "
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf ...	2	2½	" "
Ancaster in blocks.....	1	10	per ft. cube, deld. rly. depôt.
Beer "	1	6	" "
Greenshill "	1	10	" "
Darley Dale in blocks ...	2	4	" "
Red Corsehill "	2	2	" "
CloseburnRed Freestone	2	0	" "
Red Mansfield "	2	4	" "
YORK STONE—*Robin Hood Quality.*	s.	d.	
Scappled random blocks.	2	10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.).....	2	3	per ft. super. "
6 in. rubbed two sides ditto, ditto	2	6	" "
3 in. sawn two sides slabs (random sizes).....	0	11½	per ft. cube "
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	" "
1½ in. to 2 in. ditto, ditto	0	6	" "
HARD YORK—			
Scappled random blocks	3	0	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super. "
6 in. rubbed two sides ditto	3	0	" "
3 in. sawn two sides slabs (random sizes).....	1	2	" "
2 in. self-faced random flags	0	5	" "

SLATES.

In. In.	£	s.	d.	
20×10 best blue Bangor	13	2	6	per 1000 of 1200 at r.d.
20×12 " "	13	17	6	" "
20×10 first quality,,	13	0	0	" "
20×12 " "	13	15	0	" "
16×8 " "	7	5	0	" "
20×10 best blue Portmadoc	12	12	6	" "
16×8 " "	6	12	6	" "
20×10 best Eureka unfading green...	15	17	6	" "
20×12 " " ...	18	7	6	" "
18×10 " " ...	13	5	0	" "
16×8 " " ...	10	5	0	" "
20×10 permanent green	11	12	6	" "
18×10 " "	9	12	6	" "
16×8 " "	6	12	6	" "

TILES.

	s.	d.	
Best plain red roofing tiles...	42	0	per 1000 at r.y. depôt.
Hip and Valley tiles ...	3	7	per doz. "
Best Broseley tiles	50	0	per 1000 "
Do. Ornamental tiles	52	6	" "
Hip and Valley tiles ...	4	0	per doz. "
Best Ruabon red, brown, or brindled do. (Edwards) ...	57	6	per 1000 "
Do. Ornamental do.....	60	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	0	" "
Best Red or Mottled Staffordshire do. (Peakes).....	51	9	per 1000 "
Do. Ornamental do.	54	6	" "
Hip tiles	4	1	per doz. "
Valley tiles.....	3	8	" "
Best "Rosemary" brand plain tiles	48	0	per 1000 "
Best Ornamental tiles.....	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles.....	3	8	" "

TILES (*continued*).

	s.	d.	
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000, at rly depôt.
Do. pressed.....	47	6	" "
Do. Ornamental do.....	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles.....	3	6	" "
Staffordshire (Hanley) Reds or Brindled tiles.....	42	6	per 1000 "
Hand-made sand-faced.....	45	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	6	" "

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.....	13	10	0	... 15	0	0
Deals: best 3 by 9	13	0	0	... 14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	... 12	0	0
Battens: best 2½ by 6 and 3 by 6...	0	10	0	less than 7 in. and 8 in.		
Deals: seconds.....	1	0	0	less than best.		
Battens: seconds.....	0	10	0	"	"	
2 in. by 4 in. and 3 in. by 6 in....	9	0	0	... 10	0	0
2 in. by 4½ in. and 3 in. by 5 in...	8	10	0	... 9	10	0
Foreign Sawn Boards—						
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	"		
Fir timber: best middling Dantzig or Memel (average specification)	At per load of 50 ft. 4	10	0	... 5	0	0
Seconds	4	0	0	... 4	10	0
Small timber (8 in. to 10 in.) ...	3	12	6	... 3	15	0
Small timber (6 in. to 8 in.).....	3	0	0	... 3	10	0
Swedish balks	2	10	0	... 3	0	0
Pitch-pine timber (30 ft. average)	4	0	0	... 4	15	0
JOINERS' WOOD.	At per standard. £	s.	d.	£	s.	d.
White Sea: first yellow deals,	24	0	0	... 25	0	0
3 in. by 11 in.....	22	0	0	... 23	0	0
3 in. by 9 in.	16	10	0	... 18	0	0
Battens, 2½ in. and 3 in. by 7 in.	18	10	0	... 20	0	0
Second yellow deals, 3 in. by 11 in.	17	10	0	... 19	0	0
" " 3 in. by 9 in.	13	10	0	... 14	10	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	... 12	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	... 15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	... 12	0	0
Petersburg first yellow deals, 3 in. by 11 in.....	21	0	0	... 22	10	0
Do. 3 in. by 9 in.	18	0	0	... 19	10	0
Battens	13	10	0	... 15	0	0
Second yellow deals, 3 in. by 11 in.....	16	0	0	... 17	0	0
Do. 3 in. by 9 in.	14	10	0	... 16	0	0
Battens	11	0	0	... 12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	... 14	0	0
Do. 3 in. by 9 in.....	12	10	0	... 14	0	0
Battens	10	0	0	... 11	0	0
White Sea and Petersburg—						
First white deals, 3 in. by 11 in.	14	10	0	... 15	10	0
" " 3 in. by 9 in.	13	10	0	... 14	10	0
Battens.....	11	0	0	... 12	0	0
Second white deals, 3in. by 11 in.	13	10	0	... 14	10	0
" " 3 in. by 9 in.	12	10	0	... 13	10	0
Battens	10	0	0	... 11	0	0
Pitch-pine: deals.....	18	0	0	... 21	0	0
Under 2 in. thick extra	0	10	0	... 1	0	0
Yellow pine—First, regular sizes	44	0	0	upwards.		
Oddments	32	0	0	"		
Seconds, regular sizes	33	0	0	"		
Oddments	28	0	0	"		
Kauri Pine—Planks, per ft. cube..	0	3	6	... 0	5	0
Danzig and Stettin Oak Logs—						
Large, per ft. cube	0	3	0	... 0	3	9
Small " "	0	2	6	... 0	2	6
Wainscot Oak Logs, per ft. cube..	0	5	6	... 0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	... 0	0	9½
¾ in. do. do	0	0	7	...	—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch...	0	0	9	... 0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	... 0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	... 0	1	0
Teak, per load	17	0	0	... 22	0	0
American Whitewood Planks, per ft. cube.....	0	4	0	... 0	5	0
Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	... 0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	... 0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	... 1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	... 0	14	6
1 in. by 7 in. white, planed and matched	0	13	6	... 0	15	0
1¼ in. by 7 in. yellow, planed and matched	0	15	0	... 0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	... 0	13	6
1 in. by 7 in. " "	0	14	0	... 0	18	0
¾ in. by 7 in. white " "	0	10	0	... 0	11	6
1 in. by 7 in. " "	0	12	9	... 0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, £	s.	d.	per ton. £	s.	d.
Rolled Steel Joists, ordinary sections	7	0	0	... 7	10	0
Compound Girders, ordinary sections	9	0	0	... 10	0	0
Steel Compound Stanchions	11	0	0	... 12	0	0
Angles, Tees, and Channels, ordinary sections	9	0	0	... 10	0	0
Flitch Plates	9	0	0	... 9	10	0
Cast Iron Columns and Stanchions including ordinary patterns.....	7	10	0	... 8	10	0

METALS.

	Per ton, in London. £	s.	d.	£	s.	d.
IRON—						
Common Bars	8	10	0	... 9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0	... 9	5	0
Staffordshire "Marked Bars" ...	10	10	0	...	—	
Mild Steel Bars	8	15	0	... 9	5	0
Hoop Iron, basis price	9	5	0	... 9	10	0
" " Galvanised	17	0	0	...	—	

(*And upwards, according to size and gauge.)

METALS (*continued*).

	Per ton	in London.
	£ s. d.	£ s. d.
Sheet Iron Black—		
Ordinary sizes to 20 g.	9 15 0	—
" " 24 g.	10 15 0	—
" " 26 g.	12 5 0	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 0 0	—
Ordinary sizes to 22 g. and 24 g.	15 10 0	—
" " 26 g.	16 10 0	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	18 0 0	—
" " 22 g. and 24 g.	18 10 0	—
" " 26 g.	20 0 0	—
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	14 10 0	—
" " 22 g. and 24 g.	14 15 0	—
" " 26 g.	16 5 0	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12 0 0	—
Best Soft Steel Sheets, 22 g. & 24 g.	13 0 0	—
" " " 26 g.	15 0 0	—
Cut Nails, 3 in. to 6 in. (Under 3 in., usual trade extras.)	10 10 0	11 0 0

LEAD, &c.	Per ton,	in London.
	£ s. d.	£ s. d.
LEAD—Sheet, English, 3lb. and up.	16 10 0	—
Pipe in coils	16 10 0	—
Soil pipe	19 0 0	—
Compo pipe	20 0 0	—
ZINC—Sheet—		
Vieille Montagne ...ton	27 5 0	—
Silesian	27 0 0	—
COPPER—		
Strong Sheet...per lb.	0 1 0	—
Thin "	0 1 1	—
Copper nails "	0 0 10	—
Copper wire "	0 0 10	—
BRASS—		
Strong Sheet "	0 0 11	—
Thin "	0 1 0	—
TIN—English Ingots "	0 1 4½	—
SOLDER—Plumbers' "	0 0 7	—
Tinmen's "	0 0 9½	—
Blowpipe "	0 0 11½	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES

15 oz. thirds	2½d. per ft. delivered.
" fourths	1¾d. " "
21 oz. thirds	3d. " "
" fourths	2½d. " "
26 oz. thirds	4d. " "
" fourths	3d. " "
32 oz. thirds	4½d. " "
" fourths	4¼d. " "
Fluted Sheet, 15 oz.	3½d. " "
" 21 oz.	4¼d. " "

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

¼ Hartley's	2¼d. per ft. delivered.
¼ "	2¼d. " "
⅜ "	2½d. " "
Figured, Oxford Rolled, and "Oceanic" Glass, white	3¾d. " "
" " tinted	5¼d. " "
OTHER GLASS—	
"Arctic" Glass, white	4d. " "
" " tinted	5¼d. " "
" " ruby and opalescents	1s. " "

OILS, &c.		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 0
" " in barrels	"	0 2 1
" " in drums	"	0 2 3
Boiled " in pipes	"	0 2 2
" " in barrels	"	0 2 3
" " in drums	"	0 2 5
Turpentine in barrels	"	0 2 5
" in drums	"	0 2 8
Genuine Ground English White Lea	per ton	21 0 0
Red Lead, Dry	"	20 0 0
Best Linseed Oil Putty	per cwt.	0 7 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon.
	£ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 10 9
Knotting	0 16 0
French and Brush Polish	0 10 6

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 a.m. on *Thursday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcement of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BATLEY.—For heating of Healey Council school, for the Education Authority. Mr. Oscar J. Kirby, Borough Engineer, Town Hall, Batley:—
Low Pressure Heating Apparatus.
Walshaw & Wood, Commercial-street, Batley £170 0 0

BEDFORD.—For enlarging billiard and concert rooms to the Conservative Club, St. Peter's-street, Bedford. Mr. Harvey H. Sale, architect and surveyor, Silver-street, Bedford. Quantities by the architect:—

C. Negus	£836 0	S. Foster	£728 0
Jones	799 0	Corby & Son	722 0
Casbeard	739 0	S. Freshwater	719 0
Jacobs & Burton	730 8	Laughton	682 10

[Architect's estimate, £725.]

BLACKWELL.—For Pleasley sewage disposal works, for the Rural District Council. Messrs. Vallance & Westwick, engineers, White Hart-chambers, Mansfield:—
R. Lane, Mansfield* £2,100 7 6

CHESHUNT.—For new County Council school, for the Hertfordshire County Council Education Committee. Mr. Urban A. Smith, County Surveyor, Hatfield:—

Fitch & Cox	£5,999 0 0	Henson & Son	£5,314 13 6
J. & M. Patrick	5,790 0 0	A. Monk	5,245 0 0
Jennings & Grenfell	5,550 0 0	B. E. Nightingale	5,234 0 0
Sabey & Son, Ltd.	5,514 0 0	Knight & Son	5,216 0 0
A. N. Coles	5,506 0 0	P. R. Paul	5,212 0 0
A. Fairhead & Son	5,498 0 0	Hackaley Bros.	5,177 0 0
J. Chessum & Son	5,467 0 0	W. Lawrence & Son	5,172 0 0
General Building Co.	5,425 0 0	Clark & Sons, Cambridge	4,542 5 0

COLCHESTER.—For iron bridge and iron staircase at the Workhouse Infirmary, for the Guardians. Mr. C. E. Butcher, architect and surveyor, Queen-street, Colchester:—
R. Beaumont, Lexden, Colchester‡ £80
‡ Subject to approval of Local Government Board.

COLNE.—For erection of public baths in Swan Croft, for the Corporation. Mr. T. H. Hartley, Borough Surveyor, Town Hall, Colne:—

J. R. Atkinson	£2,610 13 6	P. Robinson, Foulridge, near Colne‡	£2,329 0 0
J. Crossley	2,469 9 4		
Ward & Tetley	2,409 15 4	Smith Bros., Ltd.	2,240 0 0
W. Townson	2,379 5 8		
T. E. Sugden	2,336 3 7		

‡ Accepted for excavator, mason, and bricklayer's work.

CONGLETON.—For Odd Rode water supply, for the Rural District Council. Mr. W. Woodley Wyatt, engineer, Whitchurch, Salop. Quantities by engineer:—
Cast-iron Pipes.
Sheepbridge Coal and Iron Co., Chesterfield £1,281 15 11
Laying Pipes.
J. Taylor & Son, Basford, Stoke-on-Trent 843 14 8
Sinking Well.
J. Taylor & Son, Basford, Stoke-on-Trent 200 5 5
Constructing Reservoir.
J. Stringer, Landbach 619 0 0
Supply of Sluice Valves, etc.
G. Hopkins, Tunstall, Staffs 169 2 0

DARTFORD.—For cleaning and painting works and repairs at Gore Farm (Convalescent) Fever Hospital, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

W. J. Simms & Sons	£7,209 0 0
McCormick & Sons	6,987 0 0
E. Proctor & Sons	6,704 0 0
W. Hussey	6,550 0 0
Vigor & Co.	6,480 0 0
J. Carmichael	5,939 0 0
M. McCarthy	5,835 0 0
G. H. Gunning & Sons	5,540 1 10
J. W. Ellingham	4,920 0 0
W. F. Blay	4,877 0 0
L. Kazak, 3 and 4, Station-road, Belvedere*	4,697 0 0

DARTFORD.—For tarpaving two airing courts at the Gore Farm (Convalescent) Fever Hospital, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

W. F. Blay	£128 10 0
Constable, Hart, & Co., Ltd.	118 0 0
Chittenden & Simmons, Ltd.	107 0 0
A. C. W. Hobman & Co.	102 16 6
North of England Asphalte Co.	98 19 8
J. Wainwright & Co., Ltd., Shepton Mallet, and 173, Maida Vale, W.*	79 7 0

FULHAM.—For new teak sinks at the Western Fever Hospital, Seagrave-road, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

Gardner & Hazell	£180 0	Spencer, Santo, & Co., Ltd.	£147 0
J. & C. Bowyer, Ltd.	175 0	H. Haynes	144 0
R. E. Nightingale	169 10	A. H. Inns	138 0
A. Roberts & Co., Ltd.	160 0	Swan Bros., Beaufort Works, North End-road, Fulham*	135 0
W. J. Young	159 0		
F. W. Boorman	150 0		

GRAVESEND.—For Cecil-road Schools, Gravesend, for the Gravesend Corporation. Mr. J. J. Robson, M.Inst.C.E., Architect, 335, High Holborn, W.C.:—

G. F. Tuffer	£11,675	Miskin, Ltd.	£9,532
Tong	11,559	Friday & Ling	9,500
G. H. Gunning & Son	10,749	J. C. Bowyer, Ltd.	9,500
H. W. Martin	10,495	C. E. Skinner	9,495
Multon & Wallis	10,470	W. F. Blay	9,487
Brown Bros.	10,300	Wallis & Sons	9,476
D. W. Davis	10,250	P. & E. Nightingale	9,418
G. Munday & Sons	10,245	West Bros.	9,388
W. Boroughs	9,941	Spencer, Santo, & Co.	9,360
W. Pattinson & Sons, Ltd.	9,673	Gates, Rochester*	9,353
G. Browning	9,559	Seagar‡	8,799

‡ Withdrawn.

HADDINGTON (N.B.)—For erecting a post-office, for the Commissioners of H.M. Works and Public Buildings:—

		Credit.
W. Black & Sons*	£2,730 0 0	£20
W. Grant	2,804 0 0	20
J. Angus	2,875 0 0	50
J. Farquharson	2,920 0 0	20
R. Baillie	2,926 2 5	—
J. & W. Orr	2,946 0 0	40
H. Scott	2,977 0 0	35
G. & R. Cousins	3,051 0 0	25
T. Wadell	3,595 14 0	—

HAMPSTEAD.—For kitchen ranges and galvanised cylinders for new cottages on the Hampstead Garden Suburb Estate (first portion), for the Improved Industrial Dwellings Company, Ltd. Mr. Arthur Moore, secretary, 33, Finsbury-square, E.C.:—
T. Potterton, Balham* £194 6 8

HAMPSTEAD.—For forty-nine gas-heated hot-water supply apparatuses, with "Victor" gas boilers, and coal fire "Rex" cooking range with hot-water service, for Administrative Department, in new block of flats (Associated Homes for Working Ladies) at Hampstead Garden Suburb, for the Improved Industrial Dwellings Company, Ltd. Mr. M. H. Baillie Scott, architect, Bedford:—
T. Potterton, Balham* £577 2 0

HASLEMERE.—For combined heating and domestic hot-water supply installation and cooking apparatus at Fernden Hill House, for Mr. E. Yatman. Messrs. Stanley-Barratt & Driver, architects, 23, York-place, Portman-square, London, W.:—
T. Potterton, Balham* £106

HORNCASTLE.—For erecting a grammar school for the Governors. Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln:—

Moss & Son	£3,920	Parker & Son	£3,578
Maxey & Son	3,920	Wright & Son	3,556
Hockley & Co.	3,869	Mawer Bros.	3,549
Thompson & Son	3,818	Sutton & Horton	3,502
V. Scarborough	3,782	Hensman & Son, Horncastle*	3,487
Pattinson & Son	3,595		

HOUNSLOW.—For erection of infants' department and caretaker's house at Hounslow Heath new schools for Heston and Isleworth District Council:—
Infants' Department.
W. Lacey, Staines-road, Hounslow, Middlesex* £3,740 7 4
Caretaker's House.
W. Lacey, Staines-road, Hounslow, Middlesex* 300 0 0

HULL.—For completing the Public Hall, for the Property Committee. Mr. J. H. Hirst, City Architect, Town Hall, Hull:—
W. Sanderson, Temple-street, Hull* £25,177 0 0
[Architect's estimate, £25,200.]

KEIGHLEY.—Accepted for erecting a shed at Knowle Mill, South-street. Messrs. J. B. Bailey & Son, architects, 3, Scot-street, Keighley:—
Masons and Joiners: Hird Bros. & Co., Keighley
Plumbers and Glaziers: W. & J. Hamson, Keighley
Slater: W. Thornton, Keighley
Iron and Steelwork: J. Gill, Keighley
Plasterer and Concreter: J. King, Keighley
Painter: J. A. Mullen, Keighley
Patent Glazing: W. H. Heywood & Co., Huddersfield
} £1,487 14 3

LONDON.—For taking down and rebuilding fire-brick lining to flues and renewing other brickwork of three boilers at the Ladywell Workhouse, Ladywell-road, Lewisham, S.E., for the Bermondsey Guardians. Mr. A. H. Newman, F.R.I.B.A.:—
J. Wilson, 168, Park-avenue, Barking, Essex £50 0 0

LONDON.—Supply of half-mile of cable, for the Marylebone Borough Council:—

Callender's Cable Co.	£295 0
St. Helens Cable Co.	295 0
W. G. Glover & Co., Ltd.	287 10
Siemens Bros.	287 10
British Insulated and Helsby Cables, Ltd.	287 10
W. T. Henley's Telegraph Works*	287 10

LONDON.—Cleansing and renovation of the Town Hall, for St. Marylebone Borough Council:—
W. Densham & Sons, 17, Circus-road, N.W. £118

LONDON. — For painting and repairing of certain exterior and interior work at the Hackney Electricity and Destructor Works, Millfields-road, Clapton, N.E., for the Hackney Borough Council:—

Greenhill & Markham, 11, Great Sutton-street, E.C.	£346 16 8
Woollaston Bros., 22, Rockmead-road, N.E.	409 10 9
T. Burge & Son, 255, Gray's-inn-road, W.C.	792 6 1

LONDON.—For combined heating and domestic hot-water service installation and cooking apparatus, 76, Harley-street, London, W., for Mr. F. H. Loveless. Messrs. Seth-Smith & Munro, architects, 46, Lincoln's-inn-fields, W.C.:—
T. Potterton, Balham* £192 10 0

LONDON.—For alternative tenders for the execution of wood-paving renewal works upon various small areas. Contract No. 25B. creosoted deal blocks; Contract No. 25C, West Australian hard wood blocks; Contract No. 54, purchase of the blocks taken up, for the Paddington Borough Council:—
Accepted for paving of Craven-road, Shirland-road, and Formosa-street with blocks 4 in. deep, and Praed-street (both sections) with blocks 5 in. deep, and future maintenance.
Improved Wood Pavement Co., Ltd., 46, Queen Victoria-street, E.C.
Acme Flooring & Paving Co. (1904), Ltd., Gainsborough-road, Victoria Park, N.E.
W. Griffiths & Co., Ltd., Hamilton House, Bishopsgate-street Without
J. Mowlem & Co., Ltd., Grosvenor Wharf, Westminster, S.W.
} Schedule of Prices.
[Old wood blocks taken up to be disposed o n works.

MALMESBURY.—For alterations and additions to the Castle House, for Mr. J. Moore. Mr. H. Brakspear, F.S.A., A.R.I.B.A., Corsham, Wilts. Quantities by Messrs. Amor & Underwood, Bath :—

Light & Co.	£2,755	Chivers & Son	£2,570
H. E. Ponting	2,700	Chancellor & Sons	2,490
Wills & Son	2,698	R. K. B. Rudmorn, Chippenham	2,347
Erwood & Morris	2,660	Long & Son, Bath	2,282
Hayward & Wooster	2,667		

[The two lowest to retender on revised plans.]

MANSFIELD.—For additions to Broomhill Schools, Broomhill-lane, for the Education Committee. Messrs. Vallance & Westwick, architects, White Hart-chambers, Mansfield :—

J. & F. T. Parsons, Bentwick-chambers, Mansfield* £3,113

MARGATE.—For cleaning and painting works, East Cliff House, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief :—

W. E. Coveney	£187 5 6	G. F. Hill	£93 0 0
P. Samson	161 9 0	A. Welby	69 18 6
T. Horne & Co.	130 10 0	F. J. Doughty, 9, Queen-street, Margate*	63 5 0
G. Browning	118 0 0		
Anderson Bros.	117 10 0		
J. E. Baker	111 10 0		

MERTON.—For making up private streets, for the Urban District Council. Mr. G. Jerram, Surveyor, Council Offices, Merton :—

Potter & Co.	£3,004 15 9
E. B. Yewen	2,963 3 4
Lane & Co.	2,955 0 0
T. Adams	2,684 10 2
Mowlem & Co.	2,658 0 0
Free & Sons	2,571 7 3
G. G. Rayner	2,529 1 8
E. & E. Iles, Wimbledon*	2,452 0 0
F. C. Brummell	2,408 9 2
Seymour & Hanson	2,113 5 6

MORTON.—For sewerage works, for Keighley Rural District Council. Mr. H. A. Johnson, M.Inst.C.E., 15, The Exchange, Bradford. Quantities by engineer :—

Messrs. Bird Bros. & Co., King-street, Keighley £1,312 18 7

NORTHFLEET.—For painting and decorating at the Council Offices, the Hill, for the Urban District Council. Mr. J. A. Mitchell, District Surveyor, Northfleet :—

	Oil.	Duresco.
A. Carpenter & Sons, Gravesend*	£39	£30
S. G. Allen & Son	40	35
Sparks & Barnard‡	£31	

‡ Did not comply with conditions of tendering.

NORTHFLEET.—For painting hospital, etc., for the Urban District Council. Mr. J. A. Mitchell, District Surveyor, Northfleet :—

A. Best, Dover-road, Northfleet* £26 10 0

[There were five other tenders.]

PENRITH.—For construction of waterworks (Contracts No. 1 and 2), for the Urban District Council. Mr. Baldwin Latham, M.Inst.C.E., Parliament-mansions, Victoria-street, S.W. :—

A. E. Nunn & Co., Ltd., London, E.C.	£17,465 13 5	No. 1
	14,783 1 1	No. 2

ROTHERHAM.—For erecting municipal high school, for the Governors of the Municipal High School for Girls. Messrs. Holdgate & Harrison, architects, London. Quantities by Mr. E. D. Nixon, Q.S.A., London :—

W. Crane, Ltd.	£16,508	R. Snell	£14,084
Sabey & Son	16,470	W. Nicholson & Son	12,510
Chadwick & Co.	15,895	H. Arnold & Son, Doncaster*	12,287
W. Malthouse	15,371		
Wellerman Bros.	14,660		

SOUTHEND-ON-SEA.—For alterations and additions to the conveniences at the London-road School, for the Education Committee. Mr. E. J. Elford, Borough Engineer, Municipal-buildings, Southend-on-sea :—

F. & E. Davey, Ltd.	£497	E. Johnson	£463
G. J. Dinn	476	F. E. Woodhams	449
Whur & Campkin	467	F. Davey*	420

[All of Southend-on-Sea.]

SPENNYMOOR. — For making up Grainger-street (north) and back street, for the Urban District Council. Mr. C. A. Spencer, Surveyor, Spennymoor :—

G. H. Bell	£86 18 0	G. Pickering, West Hartlepool*	£72 6 0

STANSTEAD ABBOTTS. — For constructing an engine-house, etc., for Ware Urban District Council. Mr. J. Francis, M.Inst.C.E., 28, Victoria-street, Westminster, S.W. :—

J. Barker & Co., Kensington £1,050 14 0

STANSTEAD ABBOTTS.—For suction plant and gas-engines, pumps, etc., at pumping station, for Ware Urban District Council. Mr. J. Francis, M.Inst.C.E., 28, Victoria-street, Westminster, S.W. :—

Hayward, Tyler, & Co., 99, Queen Victoria-street, E.C. £1,493 19 0

STICKFORD.—For erection of elementary school and a master's house, for Lindsey County Council Education Committee. Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln :—

J. G. Rattenbury	£2,456 0 0	J. T. Turner & Sons	£1,865 0 0
T. R. Catchpole	2,307 18 2	J. G. Holmes & Sons	1,830 10 0
T. H. Cade	2,200 0 0	A. J. Elmes	1,800 0 0
W. H. Maxey & Son	1,995 0 0	S. Sherwin & Son	1,795 0 0
J. Kime	1,980 0 0	H. J. Thompson	1,790 0 0
A. Wood	1,955 0 0	F. Scarborough, Lincoln*	1,744 18 6
T. Barlow & Co.	1,915 0 0		

WINCHMORE HILL.—For cleaning and painting works at the Northern (Convalescent) Fever Hospital, Winchmore Hill, for the Metropolitan Asylums Board. Mr. W. T. Hatch, M.Inst.C.E., Engineer-in-Chief :—

Stevens & Sons	£646	J. Carmichael, 331, Trinity-road, Wandsworth*	£255
Gardner & Hazell	350	T. Carr	220

WOKING.—For combined heating, and domestic hot-water service installation and kitchen range, also heating apparatuses for motor-house and conservatory at New House, Hook Heath, for Mr. R. T. Jones. Messrs. Cyril B. Tubbs and A. A. Messer, architects, Woking :—

T. Potterton, Balham* £299

WOKING.—For domestic hot-water supply installation, cooking apparatus, etc., in New House at Hook Heath, for Capt. Neish. Messrs. Cyril B. Tubbs and A. A. Messer, architects, Woking ;—

T. Potterton, Balham* £123

WORTHING.—For alterations and additions to laundry machinery, etc., at Millfield, Rustington, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief :—

W. Summerscales & Sons	£490 10	Ashwell & Nesbit, Ltd.	£460 0
T. Bradford & Co.	476 10	D. & J. Tullis, Ltd., Kilbowie Iron-works, Clydebank*	455 5
Glover & Hobson	475 0		
J. & F. May	473 0		
D. D. Wyles	471 0		

*** In the list of Tenders in our last issue for London-road Congregational Church, Brighton, an error occurred. Messrs. Barnes & Sons' Tender for *both* Contracts has been accepted (and *not* Miller & Selmes' for part as stated). The mistake was not ours.

Ham Hill Stone.
Doulting Stone.
Portland Stone.

The Ham Hill and Doulting Stone Co., Limited
(Incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
Norton, Stoke-under-Ham, Somerset.
London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
PHOTOLITHOGRAPHERS,
4 & 5, East Harding-street,
Fetter-lane, E.C.

ALEXR. FINDLAY & CO., LTD.,
MOTHERWELL, SCOTLAND.
STEEL ROOF and BRIDGE BUILDERS, STRUCTURAL ENGINEERS.
SPECIALTY, ALL KINDS OF
HYDRAULIC PRESSED STEEL TROUGH FLOORING
For Road and Railway Bridges, Buildings, etc.
LONDON OFFICE: 9, VICTORIA STREET, S.W.

GRICE & CO., Ltd., STONE MERCHANTS,
ADDISON WHARF, 191, Warwick Rd., KENSINGTON.
Building & Monumental Stone
A LARGE STOCK OF BEST
CAEN Stone & Alabaster For HOME TRADE and EXPORT
in Block, Slab, and Scantling.

J. J. ETRIDGE, Jr.
SLATE MERCHANT,
SLATER & TILER.
Penrhyn-Bangor,
Oakeley-Portmadoc.
BEST WORK ONLY.
Red Sandfaced Nibbed Roofing Tiles always in Stock.
Applications for Prices, etc., to
BETHNAL GREEN SLATE WORKS,
Bethnal Green, London, E.

ASPHALTE
For Horizontal & Vertical Damp Courses.
For Flat Roofs, Basements, & other Floors.
Special attention is given to the above by
THE
French Asphalte Co.
CONTRACTORS TO
H.M. Office of Works, The School Board for London, &c.
For estimates, quotations, and all information apply at the Offices of the Company.
5, LAURENCE POUNTNEY HILL,
CANNON STREET, E.C.

ALSO AT DEPTFORD, LIVERPOOL, BRISTOL,

GLASGOW, FALKIRK, AND BELFAST.